The City of Lynchburg, Virginia

CITY HALL, LYNCHBURG, VIRGINIA 24505 • (434) 455-3970
FAX (434) 845-0711

PROCUREMENT DIVISION

November 16, 2004

NOTICE OF INVITATION FOR BID
FOR
MUNICIPAL WATER TANK PAINTING AND REPAIR

The City of Lynchburg is seeking sealed Bids from qualified firms for the cleaning, exterior and interior painting and miscellaneous repair of three municipal water tanks in the City.

A **mandatory** Pre-Bid Conference will be held at 10:00 p.m., November 30, 2004, at the College Hill Water Treatment Plant, Utilities Division, 525 Taylor Street, Lynchburg, VA.

Bids will be accepted until, but not later than Wednesday, 3:00 P.M., December 15, 2004, at the address below:

Procurement Division
Attn: Stephanie Suter
Third Floor City Hall
900 Church Street
Lynchburg, Virginia 24504

Bids received after the above stated time will not be considered.

Questions regarding the solicitation portion of this bid shall be addressed to Stephanie Suter, Buyer, (434) 455-3963 or fax number (434) 845-0711 or email to stephanie.suter@lynchburgva.gov.

Stephanie Suter
Buyer

NIGP MEMBER

LYNCHBURG, VIRGINIA

5,000,000 GALLON MILL LANE RESERVOIR
1,700,000 GALLON COAGULATION TANK #1
4,000,000 GALLON COAGULATION TANK #2
EXTERIOR REPAINT with CONTAINMENT
INTERIOR REPAINT
and MISCELLANEOUS REPAIRS

PROJECT NO. 04039-W

MANDATORY PREBID MEETING: 11/30/04 at 10:00 a.m.
BID OPENING DATE: 12/15/04
BID OPENING TIME: 3:00 P.M. (local time)

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ADVERTISMENT for BIDS
(LEGAL NOTICE)

Sealed bids for cleaning, exterior and interior painting and miscellaneous repairs of Municipal Water Tanks for the City of Lynchburg, Virginia will be received in the Procurement Office, 900 Church Street, Lynchburg, Virginia, until 3:00 p.m., local prevailing time, on December 15, 2004, at which time bids shall be opened publicly and read aloud.

A mandatory pre-bid conference will be held at the College Hill Water Treatment Plant Utilities Division, 525 Taylor Street, Lynchburg, Virginia at 10:00 a.m. local prevailing time, on November 30, 2004.

Bidders must be licensed contractors in the Commonwealth of Virginia in accordance with the requirements of Title 54.1, Chapter 11, of the Code of Virginia (1950) as amended.

The procedure for withdrawal of bids shall be according to Virginia Code Section 2.2-4330.A.(i).

Drawings and project manual for the above project may be examined through the City of Lynchburg's website at http://www.lynchburgva.gov/home/index.asp?page=981, or at the following plan rooms: Carolinas AGC, Inc., High Point, NC, Phone (336) 812-3127; Builders Exchange of Richmond, Richmond, VA, Phone (804) 755-1111; F.W. Dodge Co., Richmond, VA Phone (804) 285-2291, and Roanoke, VA, Phone (540) 989-3201; Valley Construction News, Richmond, VA, Phone (804) 674-0118, and Roanoke, VA, Phone (540) 344-8127; Construction Association, 1625 S. Woodward, Bloomfield Hills, MI 48302; Daily Construction Report, 40000 Grand River Ave., Novi, MI 48375. Copies of the drawings, project manual, and proposal forms may be obtained at the office of Dixon Engineering, Inc., 1104 Third Ave., Lake Odessa, MI 48849, upon payment of a non-refundable fee of $60. Payment for specifications shall be made to Dixon Engineering, Inc. Contact person is Diane Southgate, (616) 374-3221, Ext. 307, or e-mail at dianesouthgate@dixonengineering.net.

All requests for clarification must be made in writing to Stephanie Suter, Procurement Division, by facsimile (434) 845-0711 or e-mail stephanie.suter@lynchburgva.gov, and received by 2:00 pm, December 8, 2004.

#3922

SECTION 00200
INSTRUCTION to BIDDERS

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ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office*--The office from which the Bidding Documents are to be issued – Dixon Engineering, Inc.

B. *Owner Office*—The office where the bidding procedures are to be administered – City of Lynchburg, Financial Services, Procurement Division.

C. *Field Inspection Report*—(FIR) Report prepared in field as part of Prebid Inspection. The report is provided as a courtesy to the Bidder. The data provided in the report is prepared from a Contractor's viewpoint, but its accuracy is not guaranteed. Do not rely on data in preparing bid.

D. *Prebid Inspection Report*—Written report, including FIR prepared for Owner for budgeting purposes. Report generally includes photos. Do not rely on data in preparing bids.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office, or downloaded from Owner's website.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents. Review Bid documents for completeness; no future claims for damages will be considered based on missing pages, or incomplete documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

2.04.1 Owner and Engineer, in making copies of Bidding Documents available to Plan Services, do so for the purpose of advertising. Engineer and Owner make no assertions and take no responsibility that copies made by Plan Services or provided to Plan Services are complete. Plans electronically downloaded by Bidder also are responsibility of Bidder to verify accuracy and completeness.

ARTICLE 3 - QUALIFICATIONS

3.01 *Qualification of Bidders:*

A. Qualification of Bidders: Each Bidder must be prepared to submit within five calendar days of the Owner's request written evidence of their qualifications for the project, including financial data, previous experience, and evidence of authority to conduct business in the jurisdiction where the project is located.

B. Coating projects require competent, financially solvent Contractors who complete projects on time. These projects deal with the health and safety of the public, have a short availability time, and is dangerous work; therefore, the Owner will only consider qualified Contractors. Bidders not qualified may be considered non-responsive and bids may be returned unopened. Bidders who are not qualified will not be awarded the project.

C. Requirements for qualification are:

1. Submit five projects of like size shall have been successfully completed in the last two years.

2. Bidders shall furnish proof that they are bondable for the size of the project they are bidding, and furnish proof of their bonding company's rating.

3. All projects listed by a Bidder shall have been completed by that bidder under the company name in which he will be bidding this project. If the Bidder has completed the project(s) under a different company name, then the name under which the project(s) was completed shall be noted.

C. Engineer will review submitted data to determine if Bidder meets qualification requirements. QP1 or QP2 certification by Society of Protective Coatings (SSPC) is an alternate method of qualification, except for the experience list. Any information found to be false or incorrect may be sufficient reason for disqualification.

D. Bidders must be able to prove that they are bondable, provide a certified financial statement (most recent fiscal quarter), provide a complete equipment list; and a list of manpower, including work experience and the contractor(s)/ Owner's for whom they have worked. From this information, an evaluation and recommendation will be made by Engineer using economic ratios and comparisons regarding project size, equipment, manpower available, and foreman's experience. A determination will then be made by the Owner as to whether or not the Bid will be accepted.

E. Any qualified Contractor (by Engineer or SSPC) who has litigation or pending litigation against him for work not completed on a project or for failed work on a project may be subject to disqualification.

F. In addition, the Owner may make further investigations into the Bidder's qualification, including compliance with human resource programs, as well as OSHA and environmental histories. The Owner also may review qualification to determine if experience is generic to and specific to the project. Furnish the Owner information, data, or certifications requested.

3.02 Disbarment:

A. Qualification status may be nullified if a Bidder is disbarred from bidding in a state or subdivision of a state, or by the federal government.

B. By submitting his bid, the Bidder certifies that he is not currently disbarred from submitting bids in the state or political subdivision of the state where the project is located.

3.03 Litigation Against Owner

A. Because of the potential conflict of interest, any Contractor in litigation with the Owner may be subject to disqualification.

3.04 Virginia Registration

A. Successful Bidder must be registered with the Commonwealth of Virginia State Corporation Commission before being awarded a Contract to conduct business in the City of Lynchburg.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions*

A. The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.01.A, if any, will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

1. Copies of Prebid Inspection Report, including photos, may be reviewed at issuing office at no charge, or a copy sent (UPS Ground) for the non-refundable fee of $30. This Prebid Report and the FIR were prepared for the Owner. Do NOT rely on any technical data presented in these reports.

4.02 *Underground Facilities (N/A unless identified further in S.C.)*

4.03 *Hazardous Environmental Condition (N/A unless identified further in S.C.)*

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in Paragraph 4.06 of the General Conditions.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

A. The Owner will allow exterior inspection of the facility. Access to raised ladders, etc. is the responsibility of the Bidder. Availability and time restrictions will be detailed in the Project Explanation. If not detailed, inspection is by appointment only. For security concerns, do not access the site without notice to the Owner. Do not climb the structure without authorization.

B. If the interior is available for inspection, availability and time restrictions will be detailed in the Project Explanation.

C. If the Bidder wishes to inspect the structure with anymore than ground observation, then Bidder shall provide Owner with Certificate of Insurance meeting requirements of G.C.5.03, G.C.5.04, S.C..5.03 and S.C.5.04.

4.06 Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. where existing, obtain and carefully study (or accept consequences of not doing so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

E. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

F. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

G. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

A. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has reviewed S.C. 4.03 Differing Physical Conditions, and acknowledges that provision.

ARTICLE 5 – MANDATORY PREBID CONFERENCE

5.01 If a Prebid conference is scheduled and the meeting is mandatory, as noted in the Advertisement, Representatives of Owner and Engineer will be present to discuss the Project. If Prebid conference is non-mandatory, Bidders are encouraged to attend and participate in the conference. Purchasing Agent will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to the Purchasing Agent in writing. Interpretations or clarifications considered necessary by Purchasing Agent in response to such questions will be issued by Addenda posted on the website. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Last date for questions is December 6, 2004. Questions directed to the Engineer will not be answered. There will be no communication between Engineer and any vendor during the bidding phase.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer. Addenda will only be issued on City website. Acknowledge all addenda on Bid form.

7.03 Addenda may be electronically issued within five days of opening of Bids if Addenda is considered clarification only.

7.04 The only Addenda issued after three days will be a notice to reschedule opening of Bids, or to cancel opening of Bids. Bids already in transit will be returned unopened, or held unopened if requested by Bidder until new date for opening of Bids.

7.06 Address all communication in regard to interpretations and other matters related to this project to Raleigh Motley, e-mail raleigh.motley@lynchburgva.gov

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price and in the form of a certified check or bank money order or a Bid bond (on the form attached) , or if no form is attached, on form issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 10 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

A. Bid security will be held on three lowest Bidders.

B. Bid Bonds will not be returned, but allowed to expire sixty-one days after Bid opening, unless notified by Owner.

8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

A. Bid Bonds of responsive Bidders beyond the third lowest Bids will not be returned, but will be considered expired after fourteen days, unless notified by Owner.

B. Bid Bonds of non-responsive Bidders will be considered expired upon determination by Purchasing Agent that Bid was non-responsive.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of days within which, or the dates by which, [Milestones are to be achieved and] the Work is to be substantially completed and ready for final payment are set forth in the Contract Documents and Project Explanation 01010.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement and Project Explanation 01010.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Issuing Office.

13.02 All blanks on the Bid Form shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternative, adjustment unit price item, and unit price item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

13.12 All Bid preparation expenses, including site visits, prebid meetings, etc. are the responsibility of the Bidder, whether successful or not.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

14.01 A. Bidders shall submit a Bid on a unit price basis for each line item of Work listed in the Bid schedule.

14.01 B. The Contract will be awarded on the basis of the lump sum Base Bid which is the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions. Where a quantity is not specified (i.e. exterior paint), consider the quantity as one, or a lump sum line item.

14.01 C Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 11.02 of the General Conditions.

ARTICLE 15 – BID SUBMISSION

15.01 Submit Bids using forms furnished in the Project Manual and fill in all blank spaces on the form. Repeat notation "Contractor's Current Virginia License No. _____" on outside of inner envelope containing Bid and Bid Security, and place this envelope within another envelope addressed to:

City of Lynchburg
Procurement Division Office
900 Church Street
Third Floor City Hall
Lynchburg, VA 24505

15.02 Both the inner and outer envelopes shall have noted thereon:

a. Lynchburg, Virginia – 5,000,000 Gallon Mill Lane Reservoir, 1,700,000 Gallon Coagulation Tank #1, 4,000,000 Gallon Coagulation Tank #2, Exterior Repaint with Containment, Interior Repaint, and Miscellaneous Repairs.
b. The Bidder's name and address.

15.03 Bid security shall be provided as stated in Advertisement.

15.04 Receipt deadline for Bids will be stated in the Advertisement.

a. No Bidder shall withdraw, modify, or cancel any part of his Bid for the number of days stated on the Bid Form following this date and time, except as provided by Section 2.2-4309 Virginia Public Procurement Act.

15.05 Bids will be opened publicly in accordance with Advertisement.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 48 hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

16.03 A. Modification of Bids already submitted will be considered if modifications are delivered in written form, prior to time fixed for receiving of Bids, by Bidder or properly identified messenger, or by mail, facsimile, or telegraph. Submit modifications as such and do not reveal total amount of either original or revised bid.

16.03 B. Modifications to the Total Base Bid must be accompanied by adjustment to applicable unit price items. If Bid modification is submitted to adjust Total Base Bid and if changes to applicable unit prices are not indicated, the Bidder agrees that lump sum adjustment shall be applied on prorated basis to every unit price that makes up the Total Base Bid.

16.03 C. Modifications to the Bid Form may be transmitted by facsimile to the City of Lynchburg, Financial Services, Procurement Division, at 434-845-0711 if the Bidder so chooses provided transmission is completed prior to time established for receipt of Bids.

16.03 D. Modifications shall be transmitted in typewritten form on company letterhead and signed by the official that signed the Bid Form.

16.03 E. The Owner and Engineer will not be responsible for failure attributable to transmission or receipt of facsimile Bid modifications including, but not limited to, the following:

1. Receipt of garbled or incomplete Bid.
2. Availability or condition of the receiving facsimile equipment.
3. Incompatibility between the sending and receiving equipment.
4. Delay in transmission or receipt of Bid.
5. Failure of the Bidder to properly identify the Bid.
6. Illegibility of Bid.
7. Security of Bid data.

16.03 F. Bidder may withdraw his Bid from consideration if the price bid was substantially lower than the other Bids solely to a mistake in the Bid and other considerations as defined in Virginia Code Section 2.2-4330.A.

16.03 G. To withdraw a Bid within 48 hours of Bid Opening, the Bidder shall give notice in writing of his claim of right to withdraw his Bid within 2 business days after the conclusion of the Bid Opening procedure and shall submit original work papers with such notice. Contractor's work papers are the original work papers, documents, and materials used in the preparation of the Bid as referred to in Section 2.2-4330 of the Virginia Public Procurement Act.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, non-responsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 Before the Contract is awarded, the Contractor submitting the lowest Bid must satisfy the City that they and any submitted subcontractors have the requisite organization, capital, equipment, ability, personnel, and at least five years experience in municipal type work for which they have submitted a Bid. Each Bidder shall, with his Bid, submit a list of at least five projects of similar size and dollar value completed within the last five years, giving location, dollar value, year completed, and the name(s) of the Owner(s) and Engineer(s). The Contractor shall verify to the City that they have sufficient and qualified personnel to provide for the Contract work and have the ability to provide the necessary materials and equipment on an emergency basis during non-regular hours. Failure by the lowest Bidder to sufficiently satisfy the City on their ability to meet any of the above requirements will serve as grounds for rejection of the Bid.

19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.

19.07 Unless cancelled or rejected, a responsive Bid from the lowest responsible Bidder shall be accepted as submitted, except that if the Bid from the lowest responsible Bidder exceeds available funds, pursuant to Section 18-158 of the Lynchburg Procurement Ordinance, the Owner may negotiate with the apparent low Bidder to obtain a Contract price within available funds.

a. Procedures for Negotiations: If the Owner wishes to negotiate with the apparent low Bidder to obtain a Contract price within available funds, negotiations shall be conducted in accordance with the following procedures:

1. The using agency shall provide the City Manager with a written determination that the apparent low Bid exceeds available funds. Said determination shall be confirmed in writing by the Director of Finance or his designee. The using agency shall also provide the appropriate City Manager with a suggested reduction in scope for the proposed purchase.

2. The Director of the using agency shall advise the lowest responsible Bidder, in writing, that the proposed purchase exceeds available funds. The Director shall further suggest a reduction in scope from the proposed purchase, and invite the lowest responsible Bidder to amend its Bid Proposal based upon the proposed reduction in scope. All such correspondence shall be coordinated through an in collaboration with the City's Procurement Office.

3. Repetitive informal discussions with the lowest responsible Bidder for purposes of obtaining a Contract within available funds shall be permissible.

4. The lowest responsible Bidder shall submit a written Addendum to its original Bid, which Addendum shall include: The change in scope for the proposed purchase, the reduction in price, and the new contract value.

5. If the proposed Addendum is acceptable to the Owner, the Owner may award a Contract within funds available to the lowest responsible Bidder based upon the amended Bid Proposal.

6. If the Owner and the lowest responsible Bidder cannot negotiate a Contract within available funds, all Bids shall be rejected.

19.08 Qualifications: Bidders shall complete the Qualifications Report attached to the Bid Form.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance, payment, and maintenance bonds and insurance. When the Successful Bidder delivers the executed Notice of Award to Purchasing Agent, it shall be accompanied by such bonds.

ARTICLE 21 - SIGNING OF AGREEMENT/TIMEFRAME

21.01 When Owner gives a Notice of Award to the Successful Bidder, within ten days thereafter, Successful Bidder shall sign and deliver the required number of Notice of Award attached documents to Engineer. Within twenty days after receipt of bonds, etc. from the Purchasing Agent, Owner will deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

21.02 The executed copy will be accompanied by two original copies of signed Notice to Proceed. Within five days of the date on the Notice to Proceed, the Bidder will sign the Notice to Proceed and return a copy to the Purchasing Agent. If the Purchasing Agent does not receive the accepted Notice to Proceed in five days, then the Notice to Proceed will be considered accepted by default. The Notice to Proceed will be dated on or around the contract date. The actual contract start date, completion date, etc. will be the same as the Effective Agreement Date.

ARTICLE 22 – NON-DISCRIMMINATION

22.01 By submitting their Bid/Proposal, or by acceptance of this Purchase Order, all Bidders and Offerors certify to the City of Lynchburg, VA that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians' with Disabilities Act, the Americans' with Disabilities Act, Section 2.2-4311 of the Virginia Public Procurement Act, and the Lynchburg Procurement Ordinance.

22.02 During the performance of this Contract, the Contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin, except where religion, sex or national origin is a boa fide occupational qualification reasonable necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

B. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employers.

1. Notices, advertisements, and solicitations placed in accordance with Federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

2. The Contractor will include the provisions of the foregoing paragraphs in every Subcontract or Purchase Order over $10,000, so that the provisions will be binding upon each Subcontractor or Vendor.

ARTICLE 23 – NON-COLLUSION

23.01 Collusion between Bidders will be cause for rejection of affected bids and may be cause for rejection of all bids. Multiple bids submitted by one bidder under the same or different names, whether as individual, firm, partnership, corporation, profit or non-profit, affiliate, or association will be cause for rejection of bids. A subcontractor is not a Bidder and he may submit prices to multiple Bidders.

23.02 Anti-Collusion Statement: Bidders shall complete the Anti-Collusion Statement attached to the Bid Form. Failure to sign and notarize this statement may result in rejection of the Bid.

ARTICLE 24 – ALTERNATE BIDS OR RESTRICTIONS ON BIDS

24.01 Items that affect the scope of the project and not addressed by addenda will not be accepted as an alternate bid.

24.02 Alternate bids will automatically be considered non-responsive.

24.03 Such bids may be examined prior to project award and may result in bid cancellation, followed by new bids, including the alternate.

24.04 Discounts to the Owner for payment within a stipulated period of time will not be considered conditional or qualified bids. Discounts will be accepted, but not considered in bid price evaluation for bid award.

24.05 Interest clauses will be considered a qualified bid.

24.06 Submission of post-bid information shall be in accordance with the Contract Documents.

ARTICLE 25 – APPEALS

25.01 In accordance with Section 18-159 of the Lynchburg Code, any Bidder may protest a decision to award or an award, appeal a decision to refuse to allow withdrawal of Bids, appeal a decision of disqualification, disbarment or a determination of non-responsibility, or appeal a decision on disputes arising during the performance of a Contract.

25.02 Any protest or appeal pursuant to this section shall be in accordance with such administrative procedures as the City Manager may prescribe.

25.03 Any Bidder shall submit a written protest or letter of appeal to the City Manager with a copy to the Procurement Administrator, in all of his matters, within the time constraints as set forth in the Act. The written protest or appeal shall include the basis for the protest or appeal and the relief sought, and whether the Bidder wishes to have a hearing with respect to the protest or appeal.

A. If no hearing is requested, the City Manager or his designee shall render a written decision to the Bidder within ten (10) days of receipt of the written protest or letter of appeal.

B. If a hearing is requested, it shall be held within ten (10) days of receipt of the written protest or letter of appeal, and a final decision shall be rendered within ten (10) days of the hearing. During the hearing, the protesting party shall have the opportunity to present pertinent information and to cross-examine adverse witnesses. The hearing shall be an informal administrative proceeding rather than a judicial-type trial, and a disinterested person, who may be a City employee, appointed by the City Manager, will conduct it.

25.04 The findings of fact shall be final and conclusive and shall not be set aside unless the same are fraudulent or arbitrary or capricious, or so grossly erroneous as to imply bad faith. No determination on an issue of law shall be final if appropriate legal action is instituted in a timely manner.

25.05 Any party to the administrative procedure shall be entitled to institute judicial review if such action is brought within thirty (30) days of receipt of person, who may be a City employee, appointed by the City Manager, will conduct it.

BID FORM

DATE: _____

LYNCHBURG, VIRGINIA
5,000,000 GALLON MILL LANE RESERVOIR
1,700,000 GALLON COAGULATION TANK #1
4,000,000 GALLON COAGULATION TANK #2
EXTERIOR REPAINT with CONTAINMENT
INTERIOR REPAINT
and MISCELLANEOUS REPAIRS

To: Raleigh Motley
Financial Services/Procurement Division
Third Floor/City Hall
900 Church Street
Lynchburg, Virginia 24505

In compliance with your Advertisement for Bids, the undersigned proposes to furnish all labor and materials and perform all work necessary for construction of the referenced project, in strict accordance with all the Documents dated December 15, 2004, including Addenda _____, for the considerations of the following prices:

BID – METALS – COAGULATION TANKS NO. 1 and NO. 2___DIVISION 05000

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. GROUT REPAIR _____ $_____

2. MANWAY TANK #1 _____ $_____

3. MANWAY TANK #2 _____ $_____

4. WEIR REPLACEMENT (TANK 2) _____ $_____

5. REPAIR PIPE SEAL (TANK 1) _____ $_____

6. REPAIR PIPE SEAL (TANK 2) _____ $_____

7. WEIR REPLACEMENT (TANK 2) _____ $_____

TOTAL DIVISION 05000 INCLUDING #1 THROUGH #7:

$_____

****

BID – PAINT – COAGULATION TANKS NO. 1 and NO. 2___DIVISION 09870

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. EXTERIOR REPAINT – TANK # 1 _____ $_____

2. EXTERIOR REPAINT – TANK #2 _____ $_____

3. EXTERIOR EFFLUENT PIPING, TRUSSES and WALKWAY REPAINT _____ $_____

(continued next page)

4. INTERIOR REPAINT – TANK #1_____
_____$_____

5. INTERIOR REPAINT – TANK #2_____
_____$_____

6. PIT PIPING – TANK #1_____
_____$_____

7. PIT PIPING – TANK #2_____
_____$_____

8. GRATE GALVANIZING_____
_____$_____

TOTAL PRICE DIVISION 09870 INCLUDING #1 THROUGH #8:
_____$_____

****

BID – CATHODIC PROTECTION – COAGULATION TANKS NO. 1 and NO. 2 DIVISION 16000

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. CATHODIC PROTECTION SYSTEM – TANK #1_____
_____$_____

2. CATHODIC PROTECTION SYSTEM – TANK #2_____
_____$_____

TOTAL PRICE DIVISION 16000 INCLUDING #1 AND #2:
_____$_____

BID – ELECTRICAL – COAGULATION TANKS NO. 1 and NO. 2 __DIVISION 16500

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. LIGHT REPLACEMENT – TANK #1_____
_____$_____

2. LIGHT REPLACEMENT – TANK #2_____
_____$_____

TOTAL PRICE DIVISION 16000 INCLUDING #1 AND #2:
_____$_____

TOTAL PRICE DIVISION 05000, 09870, 16000 AND 16500:
_____$_____

DIVISION 05000: $_____
DIVISION 09870: $_____
DIVISION 16000: $_____
DIVISON 16500: $_____

TOTAL COAGULATION TANKS NO. 1 and NO. 2: $_____

****

BID – SPECIAL PROJECT PROCEDURES – MILL LANE TANK _ DIVISION 01030

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. LIQUID WASTE DISPOSAL @ 740,000 GALLONS $_____/lot x 124 lots =_____
_____$_____

BID – METALS – MILL LANE TANK_____DIVISION 05000

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. SEAL BASEPLATE_____
_____$_____

2. WELD GRINDING__$_____sq. in. x 100 sq. in. =_____
_____$_____

3. NEW INTERIOR LADDER_____
_____$_____

4. SIDEWALL MANWAY_____
_____$_____

5. OUTER ROOF VENTS_____
_____$_____

6. CENTER COLUMN SUPPORT_____
_____$_____

7. BLIND FLANGE_____
_____$_____

8. SAFETY RAILING_____
_____$_____

9. WELD CATHODIC CAPS_____
_____$_____

10. ALIGNMENT TABS___$_____/each x 60 =_____
_____$_____

11. REPLACE ROOF BEAM CHAIRS @ SIDEWALL__$_____/each x 45 =__
_____$_____

12. REPAIR LEVEL INDICATOR_____
_____$_____

13. PIT LADDERS__$_____/each x 3 =_____
_____$_____

(continued next page)

14. ROOF HATCH_____
_____$_____

TOTAL PRICE DIVISION 05000 INCLUDING #1 THROUGH #14:
_____$_____

****

BID – PAINTING – MILL LANE TANK_____DIVISION 09870

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. EXTERIOR REPAINT_____
_____$_____

2. EXTERIOR REPAINT – ALTERNATE_____
_____$_____

3. INTERIOR REPAINT_____
_____$_____

4. PIT PIPING (INCLUDES 4 PITS)_____
_____$_____

5. SEAM SEALING $_____/lin. ft. x 1,000 lin. ft. =_____
_____$_____

TOTAL PRICE DIVISION 09870 INCLUDING #1 AND #3, #4 AND #5:
_____$_____

****

BID – CATHODIC PROTECTION/ELECTRICAL – MILL LANE TANK DIVISION 16000_____

BIDDER AGREES TO PERFORM ALL WORK DESCRIBED IN THE CONTRACT DOCUMENTS, INCLUDING ALL LABOR AND MATERIAL FOR THE FOLLOWING PRICES:

1. CATHODIC PROTECTION SYSTEM_____
_____$_____

2. NEW LIGHT POLES_____
_____$_____

(continued next page)

TOTAL PRICE DIVISION 16000 INCLUDING #1 AND #2:
_____$_____

TOTAL PRICE DIVISIONS 01030,05000, 09870 AND 16000:

DIVISION 01030: $_____
DIVISION 05000: $_____
DIVISION 09870: $_____
DIVISION 16000: $_____

TOTAL MILL LANE TANK: $_____

TOTAL COAGULATION TANKS #1 AND #2: $_____
TOTAL MILL LANE TANK: $_____

TOTAL PROJECT: $_____

BID BOND SHALL BE BASED ON 5% OF THE TOTAL PROJECT PRICE.

THE OWNER RESERVES THE RIGHT TO REJECT ALL BIDS BASED ON THE FINAL SELECTION OF ALTERNATIVES. THE CONTRACTOR IS WARNED NOT TO WEIGHT HIS BID BECAUSE OF THE AMOUNT OF ADJUSTMENT THE OWNER MAY MAKE IN THE SELECTION OF THE FINAL ALTERNATIVES. A WEIGHTED BID MAY RESULT IN THE LOSS OF PROFITS ON THE JOB IF THE CONTRACTOR HAS INCLUDED ALL HIS PROFIT IN ONE ITEM WHICH IS LATER DELETED BY THE OWNER.

The undersigned understands that time is of the essence and agrees to the time for completion and liquidated damages as specified in the Construction Agreement or Contract.

The undersigned acknowledges receipt of the following addenda: _____
_____.

Bid guarantee in the sum of $_____ in the; form of _____ is submitted herewith in accordance with Instructions to Bidders.

If notice of acceptance of this Bid is given to the undersigned within sixty (60) days after the date of opening of Bids, or any time thereafter before this Bid is withdrawn, the undersigned will execute and deliver an Agreement in the prescribed form within ten (10) days after the Agreement has been presented to him for signature. The required bonds and certificates of insurance shall be furnished to the Owner at the execution of the Agreement.

I certify that the firm signing this Bid and registered under that name is legally qualified to perform all work included in the scope of the Contract as determined by the Commonwealth of Virginia, Department of Commerce, State Board for Contractors, in granting the registration.

The undersigned Bidder represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation, and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm, or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for himself any advantage over any other Bidder or over Owner.

Licensed Class A Virginia Contractor No. _____
Bidder _____
By (sign) _____
Typed _____
Title _____
Business Address:
_____
_____
_____
Telephone Number _____

Partnership:
Name of Partners:
_____
_____
_____

Joint Venture:
Names of Joint Ventures:
_____
_____
_____

Corporation:
State of Incorporation:
_____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ _____ as Principal, and _____ _____ as Surety, are hereby held and firmly bound unto _____ _____ as Owner, in the penal sum of _____ DOLLARS ($_____) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns. Signed, this _____ day of _____, 20____. The condition of the above obligation is such that whereas the Principal has submitted to _____ _____ a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing for the (project:) _____ _____ _____.

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID.

Then this obligation, shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall in no way be impaired or affected by an extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper offices, the day and year first set forth above.

_____ (L.S.)
(Principal)

_____
(Surety)

By: _____

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

QUALIFICATIONS/REFERENCES

The bidder shall state here what previous Tank projects he has performed similar to that contemplated by this bid/proposal, and give references that will afford the City of Lynchburg an opportunity to judge his experience and skill. *List at least five (5) projects of similar size and dollar value completed within the last three (3) years.*

Failure to provide satisfactory evidence of experience may cause the Bid to be rejected.

Location Done	Dollar Value	Year Completed	Owner/ Engineer	Phone No.	Contact Person	Type of Work

ANTI-COLLUSION STATEMENT(Attachment 2)

I hereby certify that this bid is not the result of, or affected by, any act of collusion with another person engaged in the same line of business, or any act of fraud punishable under the Virginia Governmental Frauds Act.

CERTIFIED BY: _____ (corporate seal)

Signature

ALL PROSPECTIVE FIRMS MUST RESPOND TO THE FOLLOWING

If a limited liability company, limited liability partnership or a limited partnership indicate below:

Check one: ☐ Limited liability company

☐ Limited liability partnership

☐ Limited partnership

Have you registered with the State Corporation Commission, to conduct business in Virginia?
☐ Yes ☐ No

Name and address of organizer:_____

_____

_____

_____

List who is authorized to execute contracts: _____
_____

If conducting business under an assumed business name, fill out the following information:

Name of assumed business: _____

Owner's name and address: _____

Registration date: _____ Expires: _____

If conducting business as a sole proprietorship, fill out the following information:

Individual's name liable for all obligations of business:
_____

If you are a sole proprietor using an assumed name, please list below:
_____

Registration date:_____ Expires: _____

CONSTRUCTION AGREEMENT OR CONTRACT

This Agreement made and entered into on the _____ day of _____, 20___, by and between _____, party of the first part, hereinafter referred to as Contractor, and the City of Lynchburg, a municipal corporation of the Commonwealth of Virginia, party of the second part, hereinafter referred to as the Owner.

WITNESSETH:
That the Contractor, for the consideration hereinafter fully set out, hereby agrees with the Owner as follows:

1. That the Contractor shall furnish all labor, materials, tools, and equipment and perform all work in manner and form as contained in the Project Manual and Drawings, dated _____ for the _____ _____ and all other specifications as referenced in these documents.

2. That the Contractor shall commence work within ten (10) days after award of the Contract and Notice to Contractor to Proceed with the work under contract, and shall substantially complete the work within _____ (_____) consecutive calendar days. Owner and Contractor recognize the time is of the essence of this Agreement and that the Owner will suffer financial loss if the work is not completed within the times specified in the Contract Documents, plus any extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense and difficulties involved in providing the actual loss suffered by the Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay _____ ($_____) for each day the expires after the time specified for completion. If Contractor is subject to liquidated damages the City has the right to withhold the liquidated damages from the Contractor's regular payments or retainage.

3. The Owner hereby agrees to pay the Contractor for the faithful performance of this Agreement subject to additions and deductions as provided in the Specifications or Proposal, in lawful money of the United States, as follows:

_____ Dollars ($_____).

4. The Owner shall make partial payment on a monthly basis to the Contractor on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the Contractor, less five percent (5%) of the amount of such estimate which is to be retained by the Owner until all work has been performed strictly in accordance with this Agreement and until such work has been accepted by the Owner.

5. Upon submission by the Contractor of evidence satisfactory to the Owner that all payrolls, material bills and other costs incurred by the Contractor in connection with the

construction of the work have been paid in full, final payment on account of this Agreement shall be made within 90 days after the completion by the Contractor of all work covered by this Agreement and the acceptance of such work by the Owner.

6. It is further mutually agreed between the parties hereto that if, at any time after the execution of this Agreement and Surety Bond hereto attached for its faithful performance, the Owner shall deem the surety or sureties upon such bond to be unsatisfactory, or if for any reason, such bond ceases to be adequate to cover the performance of the work, the Contractor shall at its expense, within five (5) days after the receipt of notice from the Owner so to do, furnish an additional bondor bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the owner. In such event no further payment to the Contractor shall be deemed to be due under this Agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Owner.

7. Contractor agrees to fulfill all requirements of State, Federal, and Municipal laws which may be applicable to this project.

This agreement is executed in four counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original contract.

IN WITNESS WHEREOF, _____ has caused its name to be subscribed to this Agreement by _____, its _____, and its corporate seal to be hereunto affixed and attested by _____, its _____, said officers being duly authorized therefore; and the City of Lynchburg has caused its name to be hereunto subscribed by Walter Erwin, its Acting City Manager, and its corporate seal to be hereunto affixed and attested by Patricia Kost, its Clerk of Council, said officers being duly authorized therefore, all as to the day and year first above written.

_____
(Contractor)

(SEAL)

BY: _____

ATTEST:

_____

CITY OF LYNCHBURG

(SEAL)

BY: _____

ATTEST: City Manager

_____

Clerk of Council

APPROVED:

_____
Director of Public Works

APPROVED:

_____
City Attorney

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

ACEC
American Council of Engineering Companies

National Society of Professional Engineers
Professional Engineers in Private Practice

ASCE
American Society of Civil Engineers

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

_____

AMERICAN COUNCIL OF ENGINEERING COMPANIES

_____

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Knowledge for Creating and Sustaining the Built Environment

Construction Specifications Institute

EJCDC C-700 Standard General Conditions of the Construction Contract.
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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

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20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

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administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. *Intent of Certain Terms or Adjectives*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review**:**

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

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1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

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(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

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4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

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c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

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1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified

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in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

   a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

   b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

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3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

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deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

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Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

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1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

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c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued . No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

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or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer,, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

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6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Draw-

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ings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

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with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

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arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and

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properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

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8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment , a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

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9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

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promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A.Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

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F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

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resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation , overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

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B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

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by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times , or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

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be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

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B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

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payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

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inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

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Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

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under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

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3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

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governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 00800
SUPPLEMENTAL CONDITIONS

ARTICLE 1: SUPPLEMENTAL CONDITIONS

SC 1.00 Supplemental Conditions:

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2002 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

SC 1.01 Definitions:

A.15 Contractor: Successful bidder awarded project.

A.19 Engineer: Dixon Engineering, Inc.

A.29 Owner:

a. City of Lynchburg
Lynchburg, Virginia

b. Purchasing Agent – Raleigh Motley
Financial Services – Procurement
900 Church Street, Lynchburg, VA 24504

c. Project Manager – Steve Shenk, P.E.
College Hills Water Plant
525 Taylor Street, Lynchburg, VA 24501

A.37 Resident Project Representative: Dixon Engineering, Inc.

A.53 Performance Specifications: Specifications that require the manufacturer or supplier of equipment, materials, or systems to design, manufacture, deliver, and install products to achieve specific results under stipulated conditions of operation and in environments described in applicable Specification Sections.

A.54 Hold Point: A point in the construction sequence when the Contractor is required to stop work on that portion of the project until an inspection has been completed.

A.55 Non-Conformance Report: A report written by the Engineer to document the Contractor's procedure or work that does not meet requirements of the specifications or contract.

A.56 Bulletin: If time permits, a Bulletin is issued prior to a Change Order. A Bulletin is an inquiry of the Contractor of the cost to complete the work described in the Bulletin. It is intended as the basis of a Change Order if all parties reach agreement.

A.57 Tank Terminology: (not subject to capitalization)

a. Wet Interior: All surfaces and appurtenances in contact with water, or subject to condensation within the same chamber as the stored water.
b. Exterior: All surfaces and appurtenances exposed to weathering and not included in the definition of wet or dry interior.
c. Sidewall: Vertical walls of tank.
d. Floor: Area on bottom of tank.
e. Roof: Very top of tank, including top seam of sidewall.
f. Upper Stiffener Angle: Structural angle piece located at top of sidewall, just below transition to the roof.
g. Effluent Piping: All piping outside tank proper, including pipes, overflows, trusses, rails, etc.

SC 1.01 Add the following new paragraph immediately after A.22:
Lead, chrome, and other by-products of paint removal, as well as strippers, new coatings, and thinners, are to be included in this definition.

SC 1.01 Add the following language at the end of the first paragraph A.45:
On tank projects, date of substantial completion is the date the tank is or would have been returned to service, except for voluntary delay by Owner. Date of substantial completion is after complete cure, disinfection, and testing. Do not disinfect the coagulation tanks. Power wash all tanks before returning to service.

SC 1.02 Terminology:
Add the following new paragraph immediately after Paragraph 1.02.D.1.c.:

d. All work completed with an unresolved non-conformance report.

ARTICLE 2: DELIVERY of BONDS and EVIDENCE of INSURANCE

SC 2.01 Delivery of Bonds and Evidence of Insurance:
Delete 2.01 Paragraphs A and B in their entirety and add the following:

SC 2.01 A. Within ten (10) business days of Notice of Award, supply the Purchasing Agent with three (3) original sets of separate Payment, Performance, and Maintenance Bonds. Supply three (3) original sets of Certificates of Insurance meeting requirements found in these Supplemental General Conditions. Insurance companies and insurance forms must be standard to the industry and acceptable to the Owner. Failure to submit bonds and/or insurance within time frame will be considered a default, a failure to perform as required by the Bid Bond. The Purchasing Agent, at his option, may waive

default, delay default, or proceed with capture of the Bid Bond which will become the Owner's property.

Bonds and insurances are to be submitted to the Purchasing Agent for review. The Owner will within twenty (20) days of receipt of approved bonds and insurances from the Engineer execute the agreement and send a signed copy to the Contractor.

SC 2.01 Add the following for clarity:

B. The Owner will not provide certificate of insurance to the Contractor. The Owner will not name Contractor additional insured.

SC 2.02 Copies of Documents:

A. Amend the first sentence of Paragraph 2.02 A. to read as follows: Owner shall furnish the Contractor one signed copy of the Contract Documents.

SC 2.03 Commencement of Contract Times:

Delete Paragraph 2.03 A. in its entirety and insert the following in its place:

A. The contract times are defined in the Project Explanation in Section 01010. A Notice to Proceed will be issued thirty (30) days prior to the start date if time permits. A fax or verbal notice may be used to give thirty (30) days notice until all parties can sign the Notice to Proceed.

B. The effective start date will be indicated in the Notice to Proceed. The start date may exceed sixty (60) days after bid opening. The controlling dates will be maximum out-of-service time and/or the project completion date. The start date may float to give the Contractor more flexibility with scheduling.

SC 2.04 Starting the Work:

Amend Paragraph A. by striking out the second sentence in its entirety. Add the following as the second sentence:

Contract time is governed by out-of-service time. The Contractor is encouraged to deliver equipment to the site prior to Contract Start. The site will be available up to two (2) weeks prior to agreed drainage date.

SC 2.04 B. Add the following after paragraph A: Contractor is also encouraged to rig the structure, complete containment installation, and complete weld repairs that do not affect the wet interior prior to draining of the tank. The amount of work completed shall have been approved at the preconstruction conference.

SC 2.06 Preconstruction Conference:

Amend 2.06 Paragraph A. by striking out in its entirety. Add the following paragraphs:

A. The Engineer may schedule a preconstruction conference to be attended by Owner, Engineer, and Contractor(s). When no organization meeting is scheduled, the Contractor, prior to beginning any work, shall meet with the Engineer and arrange a work schedule for the project. Once the project has started, the Contractor shall carry it to completion without delay.

B. Attend a preconstruction meeting that may be scheduled by the Owner at a mutually agreeable time after all contract preconditions and other requirements have been met.

C. The Contractor's Contracting Officer or someone with legal authority to obligate the company/corporation, project manager (if different from officer), and the intended foreman shall attend. If project foreman does not attend the meeting, it shall be the Contractor's responsibility to supply the information discussed at the meeting to the field foreman.

D. The Owner will be represented by the project contact person, and the Engineer by the project manager, or his principal.

E. Submit all required materials prior to the preconstruction meeting.

F. All containment, personal hygiene, and lead control issues required in this contract will be reviewed. Be prepared to commit designated "competent person(s)" to responsibilities of confined space, scaffold rigging, lead, etc.

SC 2.07 Initial Acceptance of Schedules

Amend the first sentences of Paragraph 2.07 by striking out the entire sentence. Add the following language in-place of the first sentence:

A. All schedules are to be submitted prior to the preconstruction meeting.

SC 2.07 Add the following language to Paragraph A, number 3: If the Engineer determines the Schedule of Values is not acceptable, the Engineer will use the Contractor's Schedule to reallocate values. The Engineer's reallocation interest will be to maintain sufficient value for work completed toward the end of the project to avoid front loading values. The Engineer will assign values high enough to bring in another Contractor to finish work in case of default. The Contractor has five days to appeal this reallocated Schedule of Values. The Schedule of Values are the line item prices submitted with the Bid.

ARTICLE 3: CONTRACT DOCUMENTS, INTENT, AMENDING, REUSE - NO DISCUSSION

ARTICLE 4: AVAILABILITY of LANDS; SUBSURFACE and PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

SC 4.02, 4.03 and 4.04 Because of the nature of painting projects, delete all references to underground work or underground conditions. Change heading for 4.02 SUBSURFACE and PHYSICAL CONDITIONS to SG 4.02 PHYSICAL CONDITIONS, and 4.03 to SG 4.03 DIFFERING PHYSICAL CONDITONS.

SC 4.02 Physical Conditions:

Replace Paragraphs A.1 and A.2 with the following:

A. Whenever practical, a physical prebid inspection of the Project was completed prior to preparation of the specifications. During that inspection, a Field Inspection Report (FIR) was prepared. The FIR was used to produce an Engineering Report on the condition of the structure.

Add the following after 4.02.B.3:

C. If available, the FIR is included in these specification documents. The FIR contains a statement that the author of the FIR was to conduct his investigation and report as if he was a Contractor. This approach helps with the preparation of the Engineer's report. It is included as a courtesy to the Contractor. The Contractor is not an intended third party beneficiary. The report is not intended to be technical data. See Information to Bidders, Section 00200, Articles and Examination of Bidding Documents and Other Related Data and Site. It is the Contractor's responsibility to visit the site and to be responsible to know actual site conditions.

SC 4.03 Differing Physical Conditions:

Add the following paragraph after 4.02.C.2.c:

C.2.d for Rough Surfaces in the Wet Interior.

The wet interiors of steel structures are subject to corrosion. Based on the age of the tank, maintenance history of the tank, and other factors, the inside of the tank may be pitted. The degree or severity or extent of this pitting will <u>not</u> be considered a hidden condition. No claim of extra for blasting or coating application will be accepted or reviewed. If pit welding or pit filling is completed, that will be done at the bid unit price or a negotiated price. The Owner and Engineer will determine and authorize the extent of pit filling. There will be as many or more unfilled pits than authorized for repair. Contractor can not rely on pit filling to eliminate some of the application techniques needed for pitted tanks.

SC 4.04 Underground Facilities:

Amend the Section by striking out Sections A and B.

Add the following paragraph:

A. The location of any particular utility cannot be certified as being correct. In general, location and elevation are approximate only.

B. Contractor shall notify each utility before digging for anchors or for any reason. Before starting, call in advance as required by the individual agencies: Virginia: Miss Utility 800-552-7001

SC 4.05 Reference Points:

Amend the Section by striking out in its entirety.

SC 4.06 Hazardous Environmental Conditions On-Site:

Delete Paragraphs 4.06.A, 4.06.B, and 4.06.G in their entirety and insert the following:

A. There are no known hazardous environmental conditions on-site. No reports or drawings related to Hazardous Environmental Conditions are known to the Owner or Engineer.

B. Not used.

G. Not used.

ARTICLE 5: PERFORMANCE, PAYMENT and OTHER BONDS

SC 5.01 Performance, Payment, and Other Bonds:

Add the following after Paragraph 5.01.A:

A.2 Supply a Maintenance Bond for two (2) years at 100% contract price to ensure any repair work required after the one year warranty inspection within thirteen (13) months (unless stated elsewhere). The repair scheduling may be delayed several months for Contractor's schedule or Owner's operational requirements. This bond is to remain in effect until repairs have been completed. Per contract, if repairs exceed 10% of any area, then the warranty and bond are extended another year.

Modify Paragraph 5.01.B for clarity: Use Standard Industrial Forms, or use forms specifically required by the Owner. Supply three (3) original signed and properly executed bonds for each type of bond.

SC 5.02 Licensed Sureties and Insurers:

Add after Paragraph A the following:

B. Surety or Insurance Companies must, in addition to State license, be incorporated and originating from within the United States. Offshore companies or internet companies are not acceptable. Supply bonds and insurance from companies with a Class A rating or better (rates latest edition and by A.M. Best Co.).

SC 5.03 Certificates of Insurance:

A. Amend Paragraph A, first sentence, strike out "Contractor shall deliver to Owner.
Add in-place of deleted words: Contractor shall deliver three (3) copies to Purchasing Agent.

SC 5.03.B – Delete in its entirety – not used.

SC 5.03 Add the following new Paragraphs immediately after Paragraph 5.03.B:

C. Failure of Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such coverage and limits shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

SC 5.04 Contractor's Liability Insurance:

Add the following new Paragraph immediately after Paragraph 5.04.B:

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the amounts or greater where required by Laws and Regulations as defined in Owner's Instructions to Engineer Concerning Construction Bonds and Insurance. :

SC 5.06 Property Insurance:

Amend 5.06 by striking out in its entirety.

SC 5.07 Waiver of Rights:

Amend 5.07 by striking out in its entirety.

SC 5.10 Partial Utilization:

Amend Paragraph A by deleting the first sentence and adding the following:
If Owner finds it is in his best interest to occupy or use a portion or portions of the Work prior to Substantial Completion of all Work as provided in Paragraph 14.05, Contractor shall immediately and in writing notify his insurer (copy to Owner) that the Owner is now the occupier. The Contractor's insurance shall remain in force as primary insurer. Contractor shall supply written acknowledgement of occupation by Owner by Insurer, to Owner.

ARTICLE 6: SUPERVISION and SUPERINTENDENCE

SC 6.01 Supervision and Superintendence:

Add the following Paragraph immediately after 6.01, Paragraph B:

C. Resident Superintendent shall be fluent in English to the level of competency to complete requirements of 6.01, Paragraph B. Superintendent shall also be fluent or have access to a translator for the primary language of the majority of workers. Degree of fluency to be sufficient so that Superintendent can adequately complete his duties under 6.01.A.

SC 6.02 Labor, Working Hours – add the following after 6.02.B:

C. No problems are anticipated with weekend or holiday work or work beyond 7:00 A.M. to 7:00 P.M. daily at the two coagulation tanks. The Contractor is required to file anticipated work schedule at monthly progress meeting for all weekend, holiday, or work in excess of twelve (12) hours/day (second shift). The Owner will accommodate where possible, but additional expenses of Owner for Inspectors may be charged to Contractor if the schedule is not followed (i.e. Contractor requests a second shift and Owner approves hiring one (1) additional Inspector; Contractor fails to maintain schedule; Contractor will be charged for Inspector expenses not associated with actual on-site inspection services).

Mill Lane Tank should not be a problem for weekend work, but work before 7:00 A.M. and after 7:00 P.M. will most likely not be approved. Proper location of noise generating equipment will assist in placating neighbors.

SC 6.04 Project Schedule:

Add the following after 6.04.A.2:

B.

1. Notify the Owner of expected arrival a minimum of two weeks (14 days) in advance.
2. Direct all requests for inspection to the Owner for notification of the Engineer. Forty-eight (48) hours notice of all inspection requests is required.
3. A written schedule (strictly followed) will substitute for the forty-eight (48) hours inspection notice. However, twelve (12) hours notice is still required if rain or weather interferes with the schedule.
4. If the inspection visit is canceled, notify the Owner to notify the Engineer to eliminate unnecessary travel time and expense. Twelve (12) hours notice is required.
5. Be at the job site at the scheduled time of inspection if cancellation of the inspection visit is not possible.

6. The Engineer and Owner will establish an inspection schedule with the Contractor at the start of work.

SC 6.05 Substitutes and/or Equals:

Add the follow Paragraph after 6.05.A.1.b.2:

6.05.A.1.c: Whenever an article, material, or item of equipment is described by a performance specification, written as a proprietary product, or uses the name of a manufacturer or vendor, the term "or equal" if not inserted, shall be implied. The specific article, material, or item of equipment mentioned shall be understood as indicating the minimum requirements for fulfilling contract obligations in regard to type, function, standard of design, or efficiency.

SC 6.05 Add the following new Paragraph immediately after Paragraph 6.05.A.2.d.4:

5. Additional information may consist of completing Engineer's vendor checklist, field mock-ups, special samples, pilot testing, or other special requirements that Engineer determines necessary to assess if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore.

SC 6.05 E. Add the following four (4) Paragraphs after Paragraph 6.05.E:

E.2 By requesting substitute material, the Contractor acknowledges the extra costs to review submittals and agrees to reimbursement of Engineer. Engineer will invoice Owner and amount will be withheld from Contractor's payment.

E.3 Engineer has reviewed coatings for or equal evaluation and suppliers have letter of acceptance. Systems without this letter will be considered substitutes and subject to review charge.

E.4 Prior to Engineer's review of a substitute, Engineer will prepare a Work Change Directive to document Engineer's anticipated costs in reviewing Contractor's substitute. The Work Change Directive shall be executed prior to Engineer commencing its review.

E.5. The Work Change Directive will include Engineer's opinion of the probable hours required to review the substitute. Engineer will notify Contractor if the hours listed on the Work Change Directive are to be exceeded.

a. Engineer's minimum cost for reviewing a substitute will be $200.

b. Engineer's hourly rate for reviewing a substitute will be $120 per hour.

SC 6.06 Concerning Subcontractors, Suppliers, and Others:
Add the following clause at the end of the last sentence in Paragraph 6.06.A: Unless otherwise specified in the Contract Documents.

SC 6.06 Add the following Paragraphs after 6.06.B:

B.2. "Subcontracting" – This project requires certain Contractor qualifications. This requirement extends to Subcontractors.

B.3 The Contractor agrees not to sublet or assign this work without the written consent of the Owner. Violation of this condition shall be grounds for immediate dismissal of the Subcontractor or Contractor to which the work was sublet or assigned and if a satisfactory (Engineer's opinion) replacement is not on the site working within forty-eight (48) hours, the violations shall then be grounds for Contract termination and Performance Bond forfeiture.

B.4 Lump sum payments to employees instead of hourly wage will be prima facie evidence of subcontracting. The Owner reserves the right to review payroll records and pay stubs. If subcontracting is approved, no more than 30% of the project may be subcontracted.

SC 6.06 Add a new Paragraph immediately after Paragraph 6.06.G:

H. Owner or Engineer may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of work performed for Contractor by a particular Subcontractor or Supplier.

SC 6.08 Permits:
Add the following after Paragraph 6.08.A:

B. The only permits not included are environmental air quality, and permits from health agencies for interior painting. The Contractor shall work with the Owner by supplying drawings of containment with air filtration, and by meeting with Jud Brown DEQ 522-5120 ext. 6010 if requested by Owner for air quality permit.

C. Display all wage requirements and other permits on a temporary board.

D. Attach to the foreman's copy of the specifications, copies of other permits which do not require display.

SC 6.09 Laws and Regulations:
Add the following Paragraph after Paragraph 6.09.C:

D. See Paragraph 3.02.A.1 for clarification of Paragraph 6.09.C. The laws and regulations in effect at the time of opening of Bids (of Effective Date of the Agreement (EDA) if no bids are considered known to the Contractor. There will be no adjustment in Contract Price or Contract Time for not being "known" to Contractor.

E. Claims made for extra costs resulting from laws and regulations that become effective after the opening of Bids or EDA, will be reviewed based on the exposure and publication of the law or regulation in advance. There will be no adjustment in Contract Price or Contract Time for environmental or safety regulations, or other laws and regulations with similar public notice and public hearing/review procedures.

(Remainder of page intentionally left blank)

SC 6.11 Use of Site and Other Areas:

Add the following sentence after Paragraph 6.11.A.1:

b. Because of the potential of damage from airborne debris and paint drift, in regards to site clean-up, the term adjacent land or areas will be interpreted to include any property affected by the Project, whether fixed or transient. If it is necessary or desirable to protect adjacent private or public property, work with the Owner and neighbor(s) to move or cover vehicles and permanent structures.

SC 6.11 Add the following sentence after Paragraph 6.11.A.2:

b. Any damage to Owner's property resulting from the Contractor's operations shall be repaired or replaced by the Contractor without additional cost.

SC 6.11 Add following sentences after Paragraph 6.11.C:

2. Failure to continually maintain site or to immediately clean the site after a complaint or at project completion may result in the Owner completing the work by hire or by the Owner's forces. All cost would be responsibility of the Contractor.

SC 6.11 Add the following Paragraph after Paragraph 6.11.D:

E. The Contractor shall provide adequate signs, barricades, red lights, and watchmen and take all necessary precautions for the protection of the work and the safety of the public. All barricades and obstructions shall be protected at night by signal from sunset to sunrise. Barricades shall be of suitable construction and shall be painted to increase their visibility at night. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist.

F. The Contractor shall at all times so conduct his work to insure the least obstruction to traffic and inconvenience to the general public and the residences in the vicinity of the work, and to insure the protection of persons and property in a manner satisfactory to the Engineer. No road or street shall be closed to the public except with the permission of the Engineer and proper governmental authorities. The Contractor shall confer with and keep police and fire departments of the municipality fully informed as to streets or alleys which are to be closed to traffic for construction purposes. Fire hydrants on or adjacent to the work shall be kept accessible to fire fighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the usability of sidewalks and the proper functioning of all gutters, sewer inlets and drainage ditches.

G. The Contractor shall have full charge of the premises and work under construction until completion and final acceptance of the work under the Contract except as noted in the Special Conditions. The Engineer and Owner shall have full access to the site and

Contractor's personnel and equipment shall be available to the Owner and Engineer to expedite inspections. The Contractor shall be responsible for all injury to work in process of construction, and for all property or materials stored in the premises that may be damaged or stolen while the work is in his care, and he shall make good all such damage or loss without expense to the Owner. The Contractor shall confine the apparatus, the storage of materials, and the operations of his workmen to limits indicated by law, ordinance, permits, or direction of the Engineer, and shall not unreasonably encumber the premises with his materials.

H. Due to the existence of underground piping, obtain Engineer's approval before installing or using rigging, scaffolding, or equipment that might subject the piping to excessive forces.

SC 6.12 Record Documents:

Add the following Paragraph after Paragraph 6.12.A:

B. The Contractor shall keep one record copy of all specifications, plans, addenda, modifications, and shop drawings at the site, keep documents in good order and annotated to show all changes made during the construction process. These annotated documents shall be available to the Engineer.

SC 6.13 Safety and Protection:

Add the following Paragraphs after Paragraph 6.13.D:

E. Conform to the Occupational Safety and Health Standards of the United States Department of Labor and local safety agencies. This shall be made a condition of each subcontract as entered into pursuant to this contract.

F. Work on elevated tanks, lead/chrome paint removal, and painting of structures are recognized as very hazardous work, and it is further recognized that the painting industry has extensive safety training programs available.

G. Monitor and be responsible for all safety on job site. The Engineer and Owner will not monitor safety practices, and will not assume any responsibility for safety.

H. The Owner and Engineer have historically followed the Contractor's safety plan when on the site. There have been occasions where the Contractor's safety plan has proven inadequate. The specifications now require safety features for the Owner and Engineer which are now the Contractor's contractual obligation to provide. These include such items as safety cables suspended from the roof for inspection of the interior roof, and safety clips on the bottom of the bowl for all protection cables. (Legged tanks only) We encourage the Contractor to modify his fall protection plan and to provide additional cables and fall protection grabs for his personnel. Items such as roof railings are

provided for the Owner's safety. Do not rig from the railings – a separate painter's rail is provided for rigging.

I. Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operations. Submit a copy of all OSHA reportable or recordable injuries, and all OSHA citations relative to this project at project completion.

SC 6.17 Shop Drawings and Samples:

Add the following new Paragraphs immediately after Paragraph 6.17.E:

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than two (2) submittals. Engineer will record Engineer's time for review of subsequent submittals of Shop Drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time. (See SC 6.05.E.5 for rates)

F.1 The Engineer's minimum cost for issuing a second request will be one (1) hour.

F.2 Engineer's hourly rate will be $120.

F. In the event that the Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for Engineer's charges for Engineer's time per Section SC 6.17.F.1 and 2 rates above, unless the need for such substitution is beyond the control of the Contractor.

G. Submit all material to Engineer's office in Lake Odessa, MI to allow fastest review time.

SC 6.19 Contractor's General Warranty and Guarantees:

Add the following sentence after Paragraph 6.19.B.2:

3. This condition (6.19.B.2) does not apply to wet interior surfaces below the high water line. After one (1) year, zero (0) failure or deterioration is acceptable.

SC 6.19 Add the following Paragraph after 6.19.C.7:

D. Except where noted in the Contract Documents, the Contractor guarantees all material and equipment furnished and all work performed for a period of one (1) year from the date of substantial completion of the Contract. This warranty will automatically be extended until the tank is ice-free and the warranty inspection can be performed. The Contractor guarantees that the system is free

from defects due to faulty materials or workmanship and the Contractor shall make the necessary corrections to correct these defects. If the amount of rework exceeds ten percent (10%) of a portion of the project (i.e. interior painting), then the Owner reserves the right to have the warranty period extended one year for the entire portion of the work.

SC 6.22 After 6.21.E., add the following: Progress Meeting:

A. Attend and participate in a monthly Progress Meeting – first Thursday of every month. Contractor's Contracting Officer and Field Superintendent shall attend.

B. Basis for agenda for the next meeting will be established each month and added to during the month by written notice to Owner, Engineer, and Contractor by party proposing agenda item.

ARTICLE 7: OTHER WORK at SITE

SC 7.01 Related Work at Site:

Add the following Paragraph after Paragraph 7.01.C:

D. If overhead power lines present an unsafe work condition as determined by OSHA, Owner or Utility, Contractor at his expense and coordination, shall have the Utility temporarily relocate, move, or cover lines, eliminating the hazard.

E. Unless stated differently in Contract Documents, protect all antennas, controls, cables, and associated property of Owner's equipment or material on, in, or near the structure during work. Design construction procedures to maintain operation of antenna system.

F. Unless stated differently in the Contract Documents, protect all antenna controls, cables, and associated property of private telecommunication companies from damage during work. Design construction procedures to maintain operation of telecommunication systems.

SC 7.02 Coordination:

C. Coordination with other Contractors to be discussed at Prebid meeting.

SC 7.04 Claims Between Contractors:

Add the following new Paragraph after Paragraph 7.03:

A. Should Contractor cause damage to the work or property of any other contractor at the site, or should any claim arising out of Contractor's performance of the work at the site be made by any other Contractor against Contractor, Owner, Engineer, or the construction coordinator, Contractor shall promptly attempt to

settle with such other Contractor by agreement, or to otherwise resolve the dispute by arbitration or at law.

B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, and construction coordinator and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of Engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other Contractor against Owner, Engineer, Engineer's Consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the work. Should another Contractor cause damage to the work or property of Contractor or should the performance of work by any other Contractor at the site give rise to any other claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for the its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or claim.

C. If Contractor is delayed at any time in performing or furnishing work by any act or neglect of another Contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other Contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities.

ARTICLE 8: OWNER'S RESPONSIBILITIES

SC 8.06 Insurance:

Delete Paragraph 8.06 in its entirety. 8.06 not used.

SC 8.11 Evidence of Financial Arrangements:

Add the following new paragraph immediately after Paragraph 8.11.A:

B. On request of Contractor prior to the execution of any Change Order involving a significant increase in the Contract Price, Owner shall furnish to Contractor reasonable evidence that adequate

financial arrangements have been made by Owner to enable Owner to fulfill the increased financial obligations to be undertaken by Owner as a result of such Change Order.

ARTICLE 9: ENGINEER'S STATUS DURING CONSTRUCTION

SC 9.04 Authorized Variations in Work:

Add the following language after Paragraph 9.04.A:

B. A field order is written by the Engineer to the Contractor for purposes of clarification of the specifications or plans. A field order is limited to items that do not change the scope of the project. Field Orders become a part of the Contract Documents and become binding upon the Contractor if he fails to object within three (3) working days after receiving the order.

SC 9.09 Limitations of Engineer's Authority and Responsibilities:

Add the following sentences after 9.09.B:

2. Any plan or methods of accomplishing the work suggested to the Contractor by the Engineer or other representative of the Owner, but not specified or required, shall be used at the Contractor's own risk and responsibility. The Engineer and Owner assume no responsibility.

ARTICLE 10: CHANGE in the WORK: CLAIMS

SC 10.01 Authorized Changes in the Work:

Add Paragraph after Paragraph 10.01.B:

C. If Owner and Contractor are unable to agree on a price for Change Order work, do not proceed with work unless ordered in writing by the Engineer or Owner as a Change Directive. Then General Condition 10.01.B is in effect.

D. If work involved is not essential to the scope of the project and/or there is sufficient time, a Bulletin will be issued and recommended by the Engineer. The Bulletin will request a price for proposed work. If the price as offered or as later negotiated is acceptable, the Bulletin will become the basis of the Change Order. By Owner acceptance and signing, the Bulletin offered by the Contractor may become a combined document: Bulletin #___/Change Order #___, or a new separate Change Order may be prepared. The cost or credit to the Owner resulting from a change in the work shall be determined in one or more of the following ways:

1. By mutual acceptance of a lump sum.
2. By unit prices stated in the Contract Documents or subsequently agreed upon.

3. By actual itemized cost and fixed fees as set forth in 2. above. Cost shall be limited to the following: cost of materials, cost of labor, and cost of overhead.

E. At the option of the Owner, an accounting Change Order may be issued at the end of the project before final payment.

SC 10.02 Delete the remainder of the last sentence of Paragraph A after Paragraph 6.16 beginning with "or in the case…"

ARTICLE 11: COST of the WORK; ALLOWANCES; UNIT PRICE WORK

SC 11.01 Cost of Work:
Amend Paragraph 11.01.A.1 as follows:
Payroll costs, including all items above, shall be calculated at direct payroll costs (documented), times a factor of 1.35 ($1 payroll equals $1 payroll, plus $.35 benefits, etc.). Overtime and holiday expenses shall be calculated the same, the higher direct payroll costs, times a factor of 1.35.

SC 11.01.A.2 Amend as follows: Eliminate storage costs.

SC 11.01.A.3 Amend as follows: Subcontractor contract price as agreed to by Owner, plus 10%,

SC 11.01.A.5.c Delete Paragraph 11.01.A.5.c in its entirety and insert the following in its place:

c.

1. Rentals of all construction equipment and machinery, and the parts thereof in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the work.
2. Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the (Use rate book appropriate for the Project). An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable

to the changed work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed work. Equipment or machinery with a value of less than $1,000 will be considered small tools.

SC 11.03 Unit Prices:

Add the following Paragraphs after 11.03.D.3:

4: Claims for reduction of over 25% of estimated quantity of pit filling, or pit sealing, or roof seam sealing will be limited to reasonable (<25% cost of material) material restocking charge.

5. Claims for reduction of over 25% of estimated quantity of pit welding, seam welding, or repairs will not be accepted if mobilization for other repairs was required. Claims for reduction where repair was limited to reduced item will be limited to remaining percentage of mobilization costs.

ARTICLE 12: CHANGE of CONTRACT PRICE – CHANGE of CONTRACT TIME

SC 12.02 Change of Contract Times:

Add the following new Paragraphs immediately after Paragraph 12.02.B:

C. The termination of Work during the winter season on account of cold weather shall not be taken as entitling Contractor to any extension of Contract Time.

SC 12.03 Delays:

Add Paragraphs after 12.03.E:

F. Abnormal weather conditions are simply defined as weather conditions that are at variance with the routine. An example of the determination procedure and of the required claim format is:

Project length:	45 days
Substantial completion date:	June 30th.
Start date:	May 16th.
Three (3) years of data* 2001, 2002, 2003	
Average number of rain/wind days:	9
Actual number rain/wind days**:	12
Claim for time extension:	3 days

*Submit weather history from nearest weather reporting station for three (3) previous years from the same time period. Submit same data for current year. Submit formal, but simple claim (use format above).

**Rain/wind day is a rain or wind day where either rain and/or wind conditions exceeded safe work conditions or were outside the

parameters of good paint practices. Wind days are winds in excess of 20 mph for over four (4) hours during normal work hours, and rain days having measurable precipitation.

G. Claim Evaluation: Engineer will evaluate claim and make sole determination as to whether days meet criteria. Engineer will disallow dates where work could have been completed on the interior; dates that result from the Contractor's work practices (i.e. complete wet interior first and then move to outside). Good weather days not used will count against claim.

H. Claimed rain/wind days that extend beyond the scheduled substantial completion date or the extended substantial completion date will not be awarded. Days past substantial completion and good weather days that were not used because of sequencing of project work by Contractor will be considered "days within the control of the Contractor." (See GC 12.03.E)

ARTICLE 13: TESTS and INSPECTIONS

SC 13.01 Notice of Defects:

Add the following Paragraph after Paragraph 13.01.A:

B. Non-Conformance Reports:

1. The Engineer will issue a non-conformance report for every performance item, material, or equipment supplied, and/or environmental situation that fails to meet requirements of the specifications.
2. Correct all work in non-conformance before proceeding.
3. Do not start work until all required equipment is on-site.
4. Immediately correct all environmental non-conformance to prevent accidents. If an incident has already occurred, contact the proper governmental environmental agency and conduct an immediate clean-up per their direction.
5. If issued non-conformance reports are not corrected, the failure will be considered a breach of contract by the Contractor entitling the Owner to damages as follows:
   a. Work in non-conformance: If the Contractor refuses to correct, the bonding company will be notified to finish the project. At that point, payment to the Contractor for all completed work will stop until the bonding company authorizes payment, or payment may be made to the bonding company after they have proven assumption of the contract. This clause does not give either party rights to a greater payment than detailed elsewhere in these documents.
   b. Equipment specified but never supplied, or broken equipment not repaired or replaced:

- 125%* of the rental value of equipment in non-conformance (i.e. non-working decontamination trailer, hand wash facilities, air filtration units, etc.).

c. - Environmental issues: 125%* of the estimated cost of compliance.

*The cost of items 2 and 3 above are damage estimates. The cost of equipment will be the rental charge from a reputable local dealer with 25% extra being for operation cost. Cost of environmental compliance is the estimated cost of compliance. The extra 25% is potential risk to the Owner for non-conformance. In no situation will the Owner assume liability.

SC 13.02 Access to Work:

Add the following Paragraphs after Paragraph 13.02.A:

B. Stop work and schedule inspections (see SC 6.04.B) for the following hold points as a minimum:

Scheduling of Hold Points:

1. Preconstruction Meeting: Until five (5) days after all required submittals are received and reviewed by the Engineer and no exceptions are taken to the shop drawings.
2. Prior to Draining Tank:
   - To ensure all Sections of 1500 and 1560 environmental requirements are met.
   - To ensure all containment, ventilation, decontamination, and blasting equipment are on-site and in working order.
3. Section 05000 Repairs:
   - To locate or quantify repairs as necessary.
   - To review surface preparation prior to welding, and review all products prior to installation.
   - After welding is complete for quality assurance.
   - As may be specifically required in Section 05000 of the specifications.
4. Section 09870 – Wet Interior, Dry Interior, Exterior and Pit Piping:
   - Prior to surface preparation to set the standard.
   - Prior to primer application to verify cleanliness, profile, thoroughness, and ambient conditions for coating application.
   - Prior to application of each successive coat for quality assurance and ambients for next coat.
   - Prior to final coat to verify all non-conformance issues have been resolved.

- Scheduled pre-final inspection: Allow Engineer access to all locations so a complete punch list can be prepared. Final coat on ladders or other access points can be delayed until after this inspection and included as a punch list item.
- Scheduled final inspection: After ALL punch list items have been completed (including painting ladders), provide access to all items on the punch list.

5. Additional hold points scheduled at the preconstruction meeting or defined elsewhere in the specifications.
6. If Contractor fails to schedule hold point inspections, all work not inspected will be considered in non-conformance.
7. Before applying a cover coat, remove failed work. Correct all non-conformance work and request an additional inspection before painting.
8. Insure that all work meets contract specifications and does not fail the initial inspection. Contractor shall reimburse the Owner for all additional engineering expenses resulting from extra inspection visits from failure to cancel inspections, delays from inspections scheduled before work completion, or additional time necessary to inspect failed work or work performed in non-compliance with the specifications, which causes an increase in the contract price between the Engineer and Owner.
9. Each hold point requires an inspection. If Contractor coats over or otherwise makes the work inaccessible for inspection, Paragraphs SC 13.03.E and F shall apply.

SC 13.03.E and F and SC 13.04.A.B.C and D: Tests and Inspections:
Paragraphs E and F and Paragraph 13.04 Uncovering Work, A, B, C. and D will be used only where applicable, such as insulation over fill pipe, work that can be viewed after it is uncovered. These Paragraphs do not apply to coating because "uncovering" the topcoat will subsequently damage the underlying coatings. With coating removal, all work will be considered defective and Paragraph GC 13.04.C shall apply.
Paragraph D not used with paint removal.

SC 13.03.G Work completed without waiting for inspections detailed as Hold Points in SC 13.02.B.

ARTICLE 14: PROGRESS PAYMENT

SC 14.02 Delete Paragraph A.1: Sentence 1.
SC 14.02.A.1: Add the following procedures:
A. Contractor may submit one (1) pay request per month.

B. Submit pay request to Engineer by 15th. of each month. To expedite process, it is recommended, but not required, that Contractor and Resident Project Representative agree on Work completed prior submittal of pay request.

C1. Engineer will review pay request and if acceptable, will forward to Project Manager for his review and processing.

C2. Pay requests found not acceptable by Engineer will be returned to Contractor. Questionable items or items in error will be noted.

C3. Pay requests found not acceptable by Project Manager will be returned to Engineer for return to Contractor.

D. If pay request meets criteria and is processed within ten (10) days of receipt, payment can be made within thirty (30) days after submittal. Note: Historically first pay request takes longer to process.

E. There is no separate payment or separate line item for mobilization or demobilization.

SC 14.02.A Progress Payment: Delete paragraph A.1., sentence two. Stored materials will not be paid for in advance of application.

SC 14.02.A.4 Progress Payment:

Add the following Paragraph after 14.02.A.3:

4. If Contractor fails to submit required material with application for payment, Engineer will notify Contractor of missing documents. If after second submittal material is still missing, Engineer may submit pay application to Owner withholding all monies relative to missing data, or to contact Contractor again. Contractor is responsible for all increased engineering costs to the Owner after second submittal.

SC 14.02.B.5.e Progress Payment:

Add the following Paragraph after Paragraph 14.02.B.5.d:

e. Engineer will consider that material stored on-site has no value until properly applied. Engineer will not recommend payment for materials in storage.

SC 14.02.D.1.b Progress Payment: Amend paragraph 14.02.D.1.b by striking out the part of sentence beginning with the word “except” to the word “liens.”

SC 14.02 Progress Payment:

D. Reduction in Payment

Amend the following Paragraph 14.02.D.1.a and b:

Add the following phrase: “or Engineer has reasonable knowledge of”

in a. after claims have been made

in b. liens have been filed

SC 14.02.D.1 Add the following Paragraph after 14.02.D.1.d:

e. Reasonable evidence that the work cannot be completed for the unpaid balance of the contract sum;

f. Reasonable evidence that the work cannot be completed within the contract time, or;

g. Damage to the Owner or another Contractor;

h. Persistent failure to carry out the work in accordance with the Contract Documents;

i. Anticipated liquidated damages;

j. Anticipated withholding by Owner to cover additional Contractor related engineering costs;

k. Amount withheld to complete work calculated at cost of hiring another Contractor to complete work in case of default;

l. Retainage.

SC 14.02.D.2: Amend Paragraph for clarification – Owner pays invoices once a month. Any amount disputed will be reviewed and then resubmitted, but payment will be made with the next regular pay period.

SC 14.04 Substantial Completion:

Delete paragraph 14.04.D in its entirety and add the following:
Contractor is responsible for security, safety, etc. on the site until all his equipment is removed and all keys are returned.

SC 14.07 Final Payment:

Delete the last sentence of Paragraph 14.07.A.3:
Add following Paragraph 5 to the end of 14.07.A.3:

4. A bond will not be sufficient in lieu of releases and waivers of lien. A consent of surety for payment and acknowledging any disputes or unsettled claims will be sufficient.

5. If the Contractor fails to submit required material with application for payment, Engineer will notify Contractor of missing documents. If after second submittal material is still missing, Engineer will contact Contractor. Again Contractor is responsible for all increased engineering costs to the Owner after second submittal.

SC 14.07 Final Payment:

Add after 14.07.C.1:

D. Escrow Agreement:

1. It is the Owner's intention to retain 5% of all completed Work from each Pay Request until Final Payment. This amount may be deposited in an escrow account at the option of the Contractor. With the restrictions of 14.02.B.3 and 14.02.B.4 still applicable, this money is for Work

completed. Payments for disputed Work or rejected Work cannot be placed in this escrow account.

a. The Escrow Agreement Form is included after these Supplemental Conditions.
b. Contractor bears all cost of establishment and management of account.
c. Establish account in a mutually acceptable local (Lynchburg) bank. Establishment of account is optional. (Note to Contractor: Establishment of account will not have any impact on the date these funds are released. The Contractor is entitled to the interest earned. Contractor must weigh cost of attorney to establish account and possible interest earned.)

SC 14.08 Final Completion Delayed:
Delete Paragraph 14.08.A in its entirety – not used.
A delayed completion pay request will be treated as a partial pay request.

SC 14.09 Waiver of Claims:
Delete Paragraph 1.A in its entirety – not used.
Add 1.A: Because of the nature of the coating industry, Owner retains all legal remedies, as well as any negotiated or contracted warranties.

ARTICLE 15: SUSPENSION of WORK and TERMINATION

SC 15.02 Owner May Terminate for Cause:
Add the following phrase at the end of Paragraph 15.02.A.4:

5. When in the opinion of the Engineer, the non-conformance reports and daily reports indicate the Contractor is unable or unwilling to complete the contract within the terms of the contract.

SC 15.02 Owner May Terminate for Cause:
Add the following Paragraph after 15.02.F:

G. Because of health, safety, and security concerns, this contract requires qualified Contractors. Termination procedures in this contract are part of this contract and supersedes any requirements of bonding companies. The Owner has no direct contractual relationship with the bonding company. The bond is a contract with the Contractor guaranteeing its performance or payment. The bonding surety when taking over this contract is require to complete work with another qualified Contractor approved by Owner using the same standard as this Contract.

ARTICLE 16: DISPUTE RESOLUTION

SC 16.01 Methods and Procedures:

Delete Paragraphs A, B, and C in their entirety – not used.

Add the following Paragraph:

A. All questions or controversies which may arise between the Contractor and the Owner, under or in reference to this contract, should be resolved to the fullest extent possible at a meeting, shall be carefully documented, and shall become final and binding on all parties concerned. However, should the Owner and Contractor be unable to agree, the interpretation of the Engineer shall be considered binding as per contract requirements. If the matter in controversy cannot be resolved at the project meeting or after the interpretation of the Engineer, then the matter shall be resolved in accordance with Appeals Procedure of Section 18-159 of the Lynchburg Code, any Bidder may protest a decision to award or an award, appeal a decision to refuse to allow withdrawal of Bids, appeal a decision of disqualification, debarment or a determination of non-responsibility, or appeal a decision on disputes arising during the performance of a Contract.

Any protest or appeal pursuant to this section shall be in accordance with such administrative procedures as the City Manager may prescribe.

Any Bidder shall submit a written protest or letter of appeal to the City Manager with a copy of the procurement administrator, in all of his matters, within the time constraints as set forth in the act. The written protest or appeal shall include the basis for the protest or appeal and the relief sought, and whether the Bidder wishes to have a hearing with respect to the protest or appeal.

If no hearing is requested, the City Manager or his designee shall render a written decision to the Bidder within ten (10) days of receipt of the written protest or letter of appeal.

If a hearing is requested, it shall be held within ten (10) days of receipt of the written protest or letter of appeal, and a final decision shall be rendered within ten (10) days of the hearing. During the hearing, the protesting party shall have the opportunity to present pertinent information and to cross examine adverse witnesses. The hearing shall be an informal administrative proceeding rather than a judicial-type trial, and a disinterested person, who may be a City employee, appointed by the City Manager, will conduct it.

The findings of fact shall be final and conclusive and shall not be set aside unless the same are fraudulent or arbitrary or capricious, or so grossly erroneous as to imply bad faith. No determination on an issue of law shall be final if appropriate legal action is instituted in a timely matter.

Any party to the administrative procedure shall be entitled to institute judicial review if such action is brought within thirty (30) days of receipt of person, who may be a City employee, appointed by the City Manager, will conduct it.

ARTICLE 17: MISCELLANEOUS

SC 17.01 Giving Notice:
Add the follow Paragraph after Paragraph 17.01.A.2:

3. Fax or e-mail notices are sufficient means of notice once it is determined the line of communication is open (i.e. responses to earlier letters). Formal failure to perform or termination or bond notice letters require notice by Paragraphs 1 or 2.

SC 17.02 Computation of Times:
Add the following Paragraph after Paragraph 17.02.A:

B. Paragraph A does not refer to Project Time Frame calculations for Liquidated Damages.

SC 17.05 Controlling Law:
Delete Paragraph A in its entirely and add the following:

A. This Contract is governed by the law of the Commonwealth of Virginia.

SC 17.06 Headings:
Add the following after GC 17.06.

SC 17.07 Drug-Free Workplace:
During the performance of this Contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every Subcontract or Purchase

Order of over $10,000, so that the provisions will be binding upon each Subcontractor or Vendor.

Successful Contractor shall not use, possess, manufacture, or distribute alcohol or illegal drugs during the performance of the Contract or while on City premises or distribute same to City employees. Successful Contractor understands that a violation of these prohibitions constitutes a breach of Contract and that the City has the right to cancel the Contract.

For the purpose of this section, “drug-free workplace” means a site for the performance of Work done in connection with a specific Contract awarded to a Contractor, the employees whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the Contract.

This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia and the Lynchburg Public Procurement Ordinance.

CITY OF LYNCHBURG

ESCROW AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 20_____ by, between and among the City of Lynchburg ("City"), _____ _____ ("Contractor"),

_____
(Name of Bank)

_____
(Address of Bank)

a trust company, bank, or savings and loan institution with its principal office located in the Commonwealth of Virginia (hereinafter referred to collectively as "Bank"), and _____ _____ _____ ("Surety") provides:

I.

The City and the Contractor have entered into a contract with respect to City.
Project No. and Name: _____ _____ ("the Contract"). This agreement is pursuant to, but in no way amends or modifies, the Contract. Payments made hereunder or the release of funds from escrow shall not be deemed approval or acceptance of performance by the Contractor.

II.

In order to assure full and satisfactory performance by the Contractor of its obligations under the Contract, the City's Director of Finance is required thereby to retain certain amounts otherwise due the Contractor. The Contractor has, with the approval of the City, elected to have these retained amounts held in escrow by the Bank. This agreement sets forth the terms of the escrow. The Bank shall not be deemed a part to, bound by, or required to inquire into the terms of, the Contract or any other instrument or agreement between the City and the Contractor.

III.

The City shall from time to time pursuant to its contract pay to the Bank amounts retained by it under the Contract. Except as to amounts actually withdrawn from escrow by the City, the Contractor shall look solely to the Bank for payment of funds retained under the Contract and paid by the City to the Bank.

The risk of loss by diminution of the principal of any funds invested under the terms of this contract shall be solely upon the Contractor.

Funds and securities held by the Bank pursuant to this Escrow Agreement shall not be subject to levy, garnishment, attachment, lien, or other process whatsoever. Contractor agrees not to assign, pledge, discount, sell or otherwise transfer or dispose of his interest in the escrow account or any part thereof, except to the Surety.

IV.

Upon receipt of checks or warrants drawn by the Director of Finance and made payable to it as escrow agent, the Bank shall promptly notify the Contractor, negotiate the same and deposit or

invest and reinvest the proceeds in approved securities in accordance with the written instruction of the Contractor. In no event shall the Bank invest the escrowed funds in any security not approved.

V.

The following securities, and none other, are approved securities for all purposes of this Agreement:

(1) United States Treasury Bonds, United States Treasury Notes, United States Treasury Certificates of Indebtedness or United States Treasury Bills,

(2) Bonds, notes and other evidences of indebtedness unconditionally guaranteed as to the payment of principal and interest by the United States,

(3) Bonds or notes of the City,

(4) Bonds of any political subdivision of the City, if such bonds carried, at the time of purchase by the Bank or deposit by the Contractor, a Standard and Poor's or Moody's Investors Service rating of at least "A", and

(5) Certificates of deposit issued by commercial Banks located within the Commonwealth, including, but not limited to, those insured by the Bank and its affiliates,

(6) Any bonds, notes, or other evidences of indebtedness listed in Section (1) through (3) may be purchased pursuant to a repurchase agreement with a Bank, within or without the City having a combined capital, surplus and undivided profit of not less than $25,000,000 provided the obligation of the Bank to repurchase is within the time limitations established for investments as set forth herein. The repurchase agreement shall be considered a purchase of such securities even if title, and/or possession of such securities is not transferred to the Escrow Agent, so long as the repurchase obligation of the Bank is collaterized by the securities themselves, and the securities have on the date of the repurchase agreement a fair market value equal to at least 100 percent of the amount of the repurchase obligation of the Bank, and the securities are held by a third party, and segregated from other securities owned by the Bank.

No security is approved hereunder which matures more than five years after the date of its purchase by the Bank or deposit by the Contractor.

VI.

The Contractor may from time to time withdraw the whole or any portion of the escrowed funds by depositing with the Bank approved securities in an amount equal to, or in excess of, the amount so withdrawn. Any securities so deposited or withdrawn shall be valued at such time of deposit or withdrawal at the lower of par or market value, the latter as determined by the Bank. Any securities so deposited shall thereupon become a part of the escrowed fund.

Upon receipt of a direction signed by the City's Director of Public Works or the City Engineer, the Director of Finance or the City Accountant shall authorize the Bank to pay the principal of the fund, or any specified amount thereof, to the account of the City of Lynchburg. Such payment shall be made in cash as soon as is practicable after receipt of the direction.

Upon receipt of a direction signed by the City's Director of Public Works or the City Engineer, the Director of Finance or the City Accountant shall authorize the Bank to pay and deliver the principal of the fund, or any specified amount thereof, to the Contractor, in cash or in kind, as may be specified

by the Contractor. Such payment and delivery shall be made as soon as is practicable after receipt of the direction.

VII.

For its services hereunder the Bank shall be entitled to a reasonable fee in accordance with its published schedule of fees or as may be agreed upon by the Bank and the Contractor. Such fee and any other costs of administration of this Agreement shall be paid from the income earned upon the escrowed fund and, if such income is not sufficient to pay the same, by the Contractor.

VIII.

The net income earned and received upon the principal of the escrowed fund shall be paid over to the Contractor in quarterly or more frequent installments. Until so paid or applied to pay the Bank's fee or any other costs of administration such income shall be deemed a part of the principal of the fund.

IX.

The Surety undertakes no obligation hereby but joins in this Agreement for the sole purpose of acknowledging that its obligations as surety for the Contractor's performance of the Contract are not affected hereby.

WITNESS the following signatures, all as of the day and year first above written.

CITY OF LYNCHBURG

BY: _____
City Manager

CONTRACTOR: _____

BY: _____
Officer, Partner, or Owner (Seal)

SURETY: _____

BY: _____
Attorney-in-fact (seal)

BANK: _____

BY: _____

Title: _____

OWNER'S INSTRUCTIONS TO ENGINEER CONCERNING CONSTRUCTION BONDS AND INSURANCE FOR CONSTRUCTION

PROJECT: Mill Lane Tank and College Hill Coagulation Tanks 1 and 2 Rehabilitation

(Date)

FROM: City of Lynchburg, Virginia **(Owner)** | 04006-W **(Owner's Project No.)**

TO: Dixon Engineering, Inc. **(Engineer)** | 46-61-01-01-04 **(Engineer's Project No.)**

Attention: William J. Dixon, P.E., Esq.

The following are your instructions with respect to the requirements for bonds and insurance to be included in the Contract Documents for the above Project.

I. CONSTRUCTION BONDS

Construction Performance Bond and Construction Payment Bond [each in an amount equal to the Contract Price] are to be provided.

II. LIABILITY INSURANCE

The limits of liability for the liability required by Paragraph 5.04 of the General Conditions shall provide coverages for not less than the following amounts or greater where required by law or regulations and the coverages under Paragraph 5.04 shall be as follows:

A. Workers' Compensation, etc. under Paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

1. State:	Statutory
2. Applicable Federal (e.g. Longshoreman's):	Statutory
3. Employer's Liability:	$500/$500/$500

B. Comprehensive or Commercial General Liability under Paragraphs 5.04.A.3 through 5.04.A.6 of the General Conditions (including Premises-Operations; Independent Contractors' Protection; Products Liability -- Completed Operations; Broad Form Property Damage):

1. General Aggregate (Except Products-Completed Operations)	$1,000,000
2. Products-Completed Operations Aggregate	$1,000,000
3. Personal and Advertising Injury (per Person/Organization)	$1,000,000
4. Each Occurrence (Bodily Injury and Property Damage)	$1,000,000
5. Personal Injury Liability Coverage will include Claims arising out of Employment.	(NO)
6. Exclusions of Property in Contractor's Care, Custody or Control	

will be eliminated. (YES)

7. Property Damage Liability Insurance will Provide Coverage for Explosion, Collapse and Underground Damage. (YES)
8. Excess or Umbrella Liability *(include Employers' Liability, CGL, AL)*:
   a. General Aggregate $3,000,000
   b. Each Occurrence $3,000,000

C. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

1. Bodily Injury:
   a. Each Person $1,000,000
   b. Each Accident $1,000,000

   $1,000,000 Combined Single Limit
2. Property Damage:
   a. Each Accident $1,000,000
   b. or a combined single limit of $1,000,000

   $1,000,000 Combined Single Limit

D. Contractual Liability under Paragraph 5.04.B.4 of the General Conditions (Bodily Injury and Property Damage):

1. Bodily Injury:
   a. Each Accident $1,000,000
   b. Annual Aggregate $1,000,000
2. Property Damage:
   a. Each Accident $1,000,000
   b. Annual Aggregate $1,000,000

E. Liability coverage for Owner, Engineer, and others listed in the Supplementary Conditions will be provided, subject to customary exclusions for professional liability (select either [1.] or [2.] and complete [3.], if applicable):

1. By endorsement as additional insureds on Contractor's Liability Policy. (YES)
2. By a separate Protective Liability Policy covering all of them issued by Contractor's general liability carrier.
   (YES) (Indicate amounts of coverages $1,000,000)
3. List here by name and address any additional individuals or entities (in addition to Owner and Engineer) to be identified in the Supplementary Conditions as insureds or additional insureds under the required liability policies:

   N/A

F. Other Liability Insurance (if any, such as Railroad Protective Liability):

Provided By	Type of Coverage	Amount
N/A		

III. PROPERTY INSURANCE (BUILDER'S RISK):

A. Property insurance to the full replacement cost of the Work (subject to deductible amount per Paragraph 3.B herein) in accordance with Paragraph 5.06 of the General Conditions will be provided by (select one):

Owner	No
Contractor	Contractor to provide.
or	

B. Such insurance will be subject to the following deductible amount $10,000 in accordance with Paragraph 5.06.D of the General Conditions.

C. Boiler and machinery insurance in accordance with Paragraph 5.06.B of the General Conditions will be provided by Owner: (NO) and will provide coverage for the following objects subject to the following limits:

1. Objects to be insured (identify):

2. Limits $

D. Other Property Insurance:

Provided By	Type of Coverage	Amount

E. List here by name and address all individuals or entities (in addition to Owner, Contractor, Subcontractors and Engineer,) to be identified in the Supplementary Conditions as insureds or additional insureds under property insurance policies:

By: Blake Isley Date: November 3, 2004

Title: Risk Manager

SECTION 01010
PROJECT SUMMARY – MILL LANE TANK

Nothing stated in this Project Summary shall influence or override any of the conditions in the Instructions to Bidders, General Conditions, or Technical Specifications. It is included as a service to Bidders for explanation only.

The Contractor shall abide by the following schedule:

Commence work after February 15, 2005.

Substantial Completion by May 27, 2005, including cure and disinfection time.

Because of the critical nature of this tank, it is necessary to assure completion within the scheduled ninety (90) days. To complete in ninety (90) days, the following Milestones are required. Work hours are 7:00 A.M. – 5:00 P.M. Monday through Saturday.

Milestone 1: Within twenty (20) calendar days, or by March 18, 2005*, from when the tank is drained and made available to the Contractor, remove and dispose of all liquid waste, including washdown water.

Milestone 2: Within thirty (30) calendar days, or by March 31, 2005*, complete all welding and repairs of Section 05000, except replacement of sidewall door opening.

Milestone 3: Within seventy-nine (79) days, or by May 16, 2005*, paint tank, weld, replace, and paint sidewall opening.

Substantial Completion: The tank may be out-of-service a maximum of ninety (90) days, May 27, 2005**, including cure and disinfection time.

The work includes:

Exterior: Abrasive blast clean to a SSPC-SP6 commercial standard with containment, and apply a four (4) coat zinc/epoxy urethane system.

Exterior Alternate: High pressure water clean, power tool clean to a SSPC-SP3, and overcoat with a two (2) coat tinted aluminum system.

Interior: Abrasive blast clean to a SSPC-SP10 near white standard, and apply a three (3) coat epoxy polyamide system.

Pit Piping (all pits): Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a two (2) coat epoxy system.

Contractor to protect all sensitive equipment during all water washing, water blasting, abrasive blast cleaning, and painting.

Repairs - Pits:

- Install new pit ladders.
- Tighten compression ring on drain line.

Repairs – Steel: The tank was reportedly built to AWWA D100, Section C Standard (now Chapter 14). The type or grade of steel is unknown. The tank constructor is now out of business and the successor company has no records. A 30 in. sidewall manway is specified. Contractor, at his own expense, shall send a section of that steel cutout to a metallurgical lab to determine the type and grade of steel. The test results will determine the type of welding rod or wire to be used on all sidewall welding (interior and exterior), including door cutout.

Metal Repairs Attached to Sidewalls:

- Replace interior ladder.
- Install 30 in. sidewall manway.
- Cut 8 ft. x 8 ft. access hole in sidewall and weld back in-place upon completion (Contractor's option).

Metal Repairs Not Related to High Strength Steel:

Exterior:

- Chipping and grinding stray welds.
- Replace center vent with a 24 in. flanged opening and blind flange.
- Replace four (4) outer vents with frost-free roof vents on 24 in. frames.
- Install 30 in. roof manway.
- Install safety railing around manhole.
- Remove, repair, paint, and reinstall the water level gauge.
- Weld covers over cathodic holes; install safety grabs.

Interior:

- Replace alignment tabs for roof channels at the circumferential supports.
- Replace roof channel supports at the sidewalls.
- Modify center support column.

Electrical:

- Remove electrical and lights from the tank.
- Install four (4) security lights on the corners of the site.
- Install a three (3) ring floating cathodic protection system.

Miscellaneous:

- Seal baseplate.
- Replace manway gaskets.
- Remove approximately 740,000 gallons of sediment and transport to Lynchburg Regional Wastewater Treatment Plant.

*If a late start date is a result of the Owner delaying award, then the number of days will apply. If the Contractor is allowed to start on schedule, the dates shall apply even if they exceed the number of days.

**Substantial Completion date is fixed regardless of start date.

The tank was reportedly built to AWWA D100, Section C Standards (now Chapter 14). The type and grade of steel are unknown. Metallurgical testing is included as the Contractor's responsibility.

Contractor to protect all sensitive equipment during all water jetting, blasting, and painting.

SECTION 01030
SPECIAL PROJECT PROCEDURES – MILL LANE TANK

PART 1 – GENERAL

1.01 REFERENCES

A. Environmental Standards:
   1. All local, state, and federal requirements for protection of waterways and erosion and sedimentation control.
   2. All local, state, and federal requirements for waste disposal.

1.02 EXISTING CONDITIONS

A. Sediment has accumulated in the bottom of the Mill Lane treated water tank. The settled material is primarily lime, byproducts, and some sand.

B. The Owner will use or pump down to approximately 3 ft., which is higher than the sidewall manway. This will leave approximately 740,000 gallons of water and sediment in the tank.

C. Of this remaining 740,000 gallons, the water above the 18 in. mark is clear when settled. The water and sediment below the 18 in. mark were tested at 1.0% to 1.4% solids.

1.03 WORK INCLUDED

A. Pumping and Hauling: Pump out, haul, and dispose of 740,000 gallons of water and sediment, more or less, at the Lynchburg Regional Wastewater Treatment Plant, a one-way distance of approximately fourteen (14) miles from the site.

1.04 ENVIRONMENTAL REQUIREMENTS

A. No water shall be discharged to the ground. Protect all ditches, storm drains, and bodies of water from direct discharge.

1.05 SUBMITTALS

A. Submit a pumping and hauling plan showing number of tanker trucks to be used; photographs of trucks; loading and unloading rates in gallons per minute; trip times; piping, pumps, and valves; loading station and spill containment details; and traffic control.

PART 2 – PRODUCTS - Not Applicable.

PART 3 – EXECUTION

3.01 PUMPING and HAULING

A. Liquid shall be hauled to and disposed of at the Lynchburg Regional Wastewater Plant at 2301 Concord Turnpike.

A. The Contractor shall be responsible for resuspending solids for pumping.

B. The haul route shall be confined to Mill Lane as far as the tank site entrance, the Routes 460 and 501 bypasses, and Concord Turnpike. Trucks shall not be allowed to depart from this route at any time.

C. No fewer than three (3) trucks shall be available for use at all times. Truck capacity shall be 6,000 gallons nominal. Trucks shall be clean and in good condition.

D. Contractor shall provide traffic control at Mill Lane, including flagmen for truck turnaround in the street. (The site is not large enough for on-site turnaround.)

E. When not in use, trucks shall be parked at the Lynchburg Regional Wastewater Plant in an area designated by the Owner.

F. Prior to bidding, the Contractor shall examine the Mill Lane site, the prescribed haul route, and the unloading area at the Lynchburg Regional Wastewater Plant.

G. Tanker truck operations shall be limited to 7:30 A.M. to 5:00 P.M. Monday through Saturday.

H. Contractor shall complete and submit a Truck Hauled Waste Manifest for each load at the Lynchburg Regional Wastewater Plant. The manifest form will be issued to the Contractor at the Mill Lane site by the City's on-site project representative.

I. No fittings are available for connecting suction piping to the existing tank drain. Contractor shall be permitted to cut a hole for suction piping in the side of the tank above the water line, or to modify piping as approved by the Owner. Hole or piping repair shall be the responsibility of the Contractor, and shall be per the direction of the Engineer.

3.02 CLEANING

A. Section 09870 requires pressure washing of the interior before painting.

B. Dispose of all washdown and floor cleaning water by hauling to the Lynchburg Regional Wastewater Plant.

3.03 TIME

A. The time limit for emptying and cleaning shall be twenty (20) calendar days.

3.04 PAYMENT

A. The Owner will pay the fees for disposing of water and sediment at the Lynchburg Regional Wastewater Plant.

B. The Base Bid shall be based on pumping and hauling 740,000 gallons of water and sediment. Volume in gallons will be determined by measuring

the actual water depth and calculating the volume. (Volume = Depth in Ft. X ? (102.5 ft.)^2 X 7.48 Gallons Per Cubic Feet.) The Contract Amount will be adjusted up or down by Change Order using the Unit Price Per 6,000 Gallon Lot contained in the Bid/Agreement Form. The computation shall be as shown in the following examples. Any portion of a 6,000 Gallon Lot shall be counted as a full lot.

Example 1: Measured volume = 820,000 Gallons
Bid Form Unit Price = $200 per 6,000 gallons:

Adjustment: = (820,000 – 740,000) / 6,000 X $200
= (80,000) / 6,000 X $200
= 13.33 X $200
= 14 X $200
= $2,800

Example 2: Measured volume = 700,000 Gallons
Bid Form Unit Price = $200 per 6,000 gallons:

Adjustment = (700,000 – 740,000) / 6,000 X $200
= (- 40,000) / 6,000 X $200
= (- 6.67) X $200
= (- 7) X $200
= - $1,400

C. Truck loads will not be counted, nor capacity checked.

D. For water/waste generated during tank cleaning (3.02 above), the:
   1. Owner will pay the fees for disposing of water and sediment at the Lynchburg Regional Wastewater Plant.
   2. Contractor will pay all collection and transportation costs.

E. Pay item is Liquid Waste Disposal.

SECTION 01500
TEMPORARY CONSTRUCTION FACILITIES and UTILITIES – MILL LANE TANK

PART 1 GENERAL

1.01 SUMMARY
A. Provide and maintain temporary facilities and utilities required for construction; remove on completion of work.

1.02 QUALITY ASSURANCE
A. Regulatory Requirements:
   1. National Fire Protection Association (NFPA):NFPA No. 70-93.
   2. National Electrical Code (NEC) and local amendments thereto.
   3. Comply with federal, state, and local codes and regulations, and utility company requirements.

PART 2 PRODUCTS

2.01 TEMPORARY ELECTRICITY and LIGHTING
A. Supply temporary lighting sufficient to enable contractor to safely access all work areas.
B. Electrical requirements in excess of capacity of existing electrical service shall be responsibility of contractor.
C. Provide, maintain, and remove temporary electric service facilities.
D. Facilities exposed to weather shall be weatherproof-type and electrical equipment enclosure locked to prevent access by unauthorized personnel.
E. Pay for installation of temporary services.
F. Patch affected surfaces and structures after temporary services have been removed.
G. Provide explosion proof lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and small power tools.

2.02 WATER for CONSTRUCTION
A. Owner will provide water required for cleaning and other purposes.
B. Water use shall not exceed usage that might endanger the owner's water system's integrity.

2.03 SANITARY FACILITIES
A. Provide temporary sanitary toilet facilities conforming to state and local health and sanitation regulations, in sufficient number for use by contractor's employees.
B. Maintain in sanitary condition and properly supply with toilet paper.
C. Remove from site before final acceptance of work.

2.04 TEMPORARY FIRE PROTECTION

A. Provide and maintain in working order a minimum of two fire extinguishers and such other fire protective equipment and devices as would be reasonably effective in extinguishing fires.

2.05 DAMAGE to EXISTING PROPERTY

A. Contractor is responsible for replacing or repairing damage to existing buildings, sidewalks, roads, parking lot surfacing, and other existing assets.

B. Owner has the option of contracting for such work and having cost deducted from contract amount if the contractor is not qualified, or fails to act in a timely manner.

2.06 SECURITY

A. Security is not provided by owner.

B. Contractor shall be responsible for loss or injury to persons or property where work is involved, and shall provide security and take precautionary measures to protect contractor's and owner's interests.

2.07 TEMPORARY PARKING

A. Parking not allowed on project site unless designated or approved by owner.

B. Make arrangements for parking area for employees: vehicles.

C. Costs involved in obtaining parking area shall be borne by contractor.

2.08 ENGINEER'S FIELD OFFICE

A. Provide heated, weatherproofed trailer office for exclusive use of the Engineer.

B. Locate office as directed by the Engineer.

C. Provide electric or propane heat, electric air conditioning, and screened and locking windows during the duration of this Contract.

D. Anchor for stability in high winds.

E. This office shall be a minimum of 10 ft. x 20 ft. in-place; one (1) door; two (2) single windows and a double window shall be provided. Equip the doors with a cylinder lock. The office shall be equipped using acceptable second-hand or on-site constructed furniture as follows:

1. One (1) desk with drawers.
2. Two (2) desk chairs.
3. Four (4) electric convenience outlets.
4. Two (2) wastebaskets.
5. One (1) smoke alarm.
6. Two (2) 10 lb. fire extinguishers for Class "ABC" fires.

F. Provide three (3) parking spaces close to Engineer's office, reserved for Engineer and Owner.

PART 3 EXECUTION

3.01 GENERAL

A. Maintain and operate systems to ensure continuous service.
B. Modify and extend systems as work progress requires.

3.02 REMOVAL

A. Completely remove temporary materials and equipment when no longer required.
B. Clean and repair damage caused by temporary installation or use of temporary facilities.
C. Restore existing or permanent facilities used for temporary services to specified or original condition.

3.03 BARRIERS and ENCLOSURES

A. The contractor shall furnish, install, and maintain as long as necessary, and remove when no longer required adequate barriers, warning signs or lights at all dangerous points throughout the work for protection of property, workers, and the public. The contractor shall hold the owner harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the work under the contract.

SECTION 01560
PROTECTION of ENVIRONMENT – MILL LANE TANK

PART 1 GENERAL

1.01 SUMMARY

A. Contractor in executing work shall maintain work areas on-and-off-site free from environmental pollution that would be in violation of federal, state, or local regulations.

1.02 PROTECTION of SEWERS

A. Take adequate measures to prevent impairment of operation of existing sewer system. Prevent construction material, pavement, concrete, earth, or other debris from entering sewer or sewer structure.

1.03 PROTECTION of WATERWAYS

A. Observe rules and regulations of local and state agencies, and agencies of U.S. government prohibiting pollution of any lake, stream, river, or wetland by dumping of refuse, rubbish, dredge material, or debris therein.

B. Provide containment which will divert flows, including storm flows and flows created by construction activity, to prevent loss of residues and excessive silting of waterways or flooding damage to property.

C. Comply with procedures outlined in the Virginia Erosion and Sediment Control Handbook.

1.04 DISPOSAL of EXCESS EXCAVATED and OTHER WASTE MATERIALS

A. Dispose waste material in accordance with federal, and state codes, and local zoning ordinances.

B. Unacceptable disposal sites include, but are not limited to, sites within wetland or critical habitat, and sites where disposal will have detrimental affect on surface water or groundwater quality.

C. Make arrangements for disposal subject to submission of proof to engineer that owner(s) of proposed site(s) has valid fill permit issued by appropriate government agency and submission of haul route plan including map of proposed route(s).

D. Provide watertight conveyance for liquid, semi-liquid, or saturated solids which tend to bleed during transport. Liquid loss from transported materials not permitted, whether being delivered to construction site or hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at selected disposal site.

E. Waste generated by abrasive blast cleaning is detailed in Section 09870.

1.05 PROTECTION of AIR QUALITY

A. Contain paint aerosols and V.O.C.'s by acceptable work practices.

B. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment used by contractor, and encouraging shutdown of motorized equipment not actually in use.
C. Trash burning not permitted on construction site.
D. If temporary heating devices are necessary for protection of work, they shall not cause air pollution.

1.06 PROTECTION from FUEL and SOLVENTS

A. Protect the ground from spills of fuel, oils, petroleum distillates, or solvents by use of containment systems.
B. Supply containment system for fuel on stationary equipment or stationary fuel tanks.
C. Drip pans or other acceptable means shall be employed to prevent oil and other lubricants or coating fluids from spilling or depositing on the ground.
D. Disposal of waste fluids shall be in conformance with federal, state, and local laws and regulations.

1.07 USE of CHEMICALS

A. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification must show approval of U.S. EPA, U.S. Department of Agriculture, state, or other applicable regulatory agency.
B. Use of such chemicals and disposal of residues shall be in conformance with manufacturer's written instructions and applicable regulatory requirements.

1.08 NOISE CONTROL

A. Conduct operations to cause least annoyance to residents in vicinity of work, and comply with applicable local ordinances.
B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
D. Route vehicles (other than tanker trucks) carrying materials over such streets as will cause least annoyance to public and do not operate on public streets between hours of 6:00 p.m. and 7:00 a.m., or on Saturdays, Sundays, or legal holidays unless approved by owner.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

3.01 HAZARDOUS MATERIALS PROJECT PROCEDURES

A. Applicable Regulations:

1. RCRA, 1976 - Resource Conservation and Recovery Act:
   This federal statute regulates generation, transportation, treatment, storage and disposal of hazardous wastes nationally.

B. To use an off-site hazardous waste disposal facility, the contractor must use the Uniform Hazardous Waste Manifest (shipping paper).

C. Federal, State and local laws and regulations may apply to the storage, handling and disposal of hazardous materials and wastes.

SECTION 05000
METALS – MILL LANE TANK

PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Steel Repair.
B. Surface Preparation of Lead Paint Before Welding.

1.02 REFERENCES
A. AWWA D100 Weld Standard
B. AWS Weld Standard
C. API 650 Standard

1.03 OMISSIONS
A. The specifications include all work and materials necessary for completion of the work. Any incidental item(s) of material, labor, or detail(s) required for the proper execution and completion of the work are included.

1.04 DEFINITIONS
A. Ground Flush: Ground even with adjacent metal, no transition.
B. Ground Smooth: Ground welds to the point that no cuts or scratches occur when rubbing your hand over the weld. Rebuild with weld any concavity discovered during the grinding.

1.05 WORK INCLUDED
A. Seal baseplate.
B. Weld grinding.
C. Replace interior ladder.
D. Replace manway gaskets.
E. Install 30 in. sidewall manway.
F. Replace center vent with blind flange.
G. Replace four (4) outer vents with frost-free roof vents on 24 in. hatches.
H. Install safety railing at edge of roof.
I. Install cathodic covers and patch holes.
J. Replace alignment tabs at circumferential supports.
K. Replace roof channel supports at the sidewalls.
L. Repair level indicator.
M. Tighten compression ring on the drain line.
N. Replace the roof hatch.
O. Install temporary access in sidewall.
P. Replace ladders in three (3) pits.
Q. Modify center support column, and install blind flange over center roof vent collar.

1.06 WORKMANSHIP

A. Provide material and workmanship necessary to produce a first class job.

B. Complete work in a manner which is least offensive to neighbors.

1.07 WELDER QUALIFICATIONS

A. Certified for type and position of weld specified.

B. The welder shall be specialized in industrial or heavy commercial welding, and experienced in rigging and elevated work.

1.08 SUBMITTALS

A. Material Safety Data Sheets (MSDS) - For all items as required by law.

B. Submit materials at least one week prior to preconstruction meeting.

C. Welder=s Certification.

PART 2 - PRODUCTS

2.01 STEEL PLATING and OTHER STRUCTURAL SHAPES

A. ASTM - A36

B. Sidewall steel and steel for reinforcement ring to be determined by metallurgical tests performed on steel removed for manhole opening.

2.02 BOLTS

A. ASTM - A304 – Stainless Steel Bolts – do not paint.

2.03 WELDS

A. Perform metallurgical testing on steel from new manway to determine steel type and grade of existing shell plate.

B. Use on interior roof repairs:

1. Final - E70XX Electrodes
2. Root - E60XX Electrodes
3. Wire - ER70S-X Electrode

2.04 CAULKING – SEAL BASEPLATE

A. Dow Corning 888 Sealant has been selected as the standard.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION - PREWELDING - LEAD PAINT

A. The existing exterior coating is known to contain lead at 12% - 14% by weight, and chrome at 1.5% - 1.9% by weight.

B. Remove all coating by abrasive blast cleaning prior to any cutting, welding, or disturbance of the lead paint.

C. Exterior paint base bid in Division 09870 is to abrasive blast clean inside containment and paint with zinc/epoxy/urethane. The alternate bid is to overcoat.

Be aware when calculating weld surface preparation and weld clean-up costs of repairing exterior burns.

D. Remove all coating for 6 in. on both sides of the area to be welded by vacuum shrouded power tool or abrasive blasting. Chemical stripping or other method may be approved by the engineer.

E. Absolutely do not begin any repair work until all adjacent lead is properly removed, cleaned, and stored.

3.02 SEAL BASEPLATE

A. Remove all loose or brittle sealant, and all dirt from the gap between the baseplate and foundation.

B. Pressure wash the surface using a minimum nozzle tip pressure of 2,000 psi. All surfaces shall be free of all standing water or frost in accordance with the manufacturer-s recommendations.

C. Follow manufacturer-s recommendations for application. Material may require more than one application, depending on depth. An approved backer bar may be used at 3 in. depth.

D. Payment is a separate line item “Seal Baseplate” which the owner reserves the right to delete.

3.03 WELD GRINDING

A. Grind flush all stray welds and construction lug breaks located by the engineer.

B. Payment is based on a “per square inch” equivalence of ? in. bead elevation. On stray erection welds, a ? in. weld, 8 in. long is equivalent to 1 sq. in.

C. Payment is a separate line item “Weld Grinding” which the owner reserves the right to increase or decrease the quantity of 100 sq. in., or delete.

3.04 NEW INTERIOR LADDER

A. Remove the existing wet interior ladder. Ladder to become property of the contractor for proper disposal. In the event the base metal is gouged during ladder removal, the affected areas are to be built-up to original steel thickness. Grind built-up areas flush with adjacent surfaces.

B. Furnish and install a new wet interior ladder.

C. Ladder to be 16 in wide with ¾ in. diameter rebar rungs, spaced every 12 in. on center, and provide a minimum of 7 in. toe clearance. Seal weld all rungs on both sides of side rails. Install first rung 12 in. above floor.

D. Construct side rails of 4 in. x 3 in. x ¼ in. angle. Spacing on ladder brackets is 10 ft. maximum.

E. Ladder shall meet or exceed all OSHA requirements.

F. Furnish and install a rail-type fall prevention device in the wet interior that meets all OSHA requirements. Begin the device approximately 3 ft. above the floor, and end 6 in. below the roof.

G. Install stainless steel fall prevention device on wet interior ladder. Do not install until after abrasive blast cleaning and painting have been completed. Use temporary devices during project.
H. Supply two (2) portable rail glides, two (2) safety harnesses, and associated hardware. Supply each harness with a 5 ft. double lanyard with one (1) large D snap hook on each branch of split lanyard. Supply belts or center waist D ring attachment with carabiner for use with required device.
I. See Drawing 01.
J. Payment is a separate line item “New Interior Ladder” which the owner reserves the right to delete.

3.05 REPLACE SIDEWALL MANWAY GASKETS

A. Replace the sidewall manway gaskets’ material with new **d** in. flat neoprene gasket material.
B. Payment is incidental to interior repainting.

3.06 MANWAY

A. Install a 30 in. diameter manway in the tank's sidewall, approximately 90º from existing manways. Engineer to field verify location.
B. Install API reinforcement ring.
C. Remove all slag, spatter, and rough welds by grinding smooth.
D. Install new **d** in. flat neoprene gasket material.
E. See Drawings 02a – 02b.
F. Tank steel is known to fall under AWWA – Appendix C design. Send coupon of steel removed for manway opening to a metallurgical lab for identification. Use the same grade steel for reinforcement collar and for neck cover.
G. Payment is a separate line item "Sidewall Manway" which the owner has the right to delete.

3.07 FROST-FREE ROOF VENTS

A. Remove the four (4) outer vents. Vents to become property of the contractor for disposal.
B. Furnish and install new vents on 24 in. hatches. Cut and construct vents per Drawings 04a – 04d.
C. Payment is a separate line item “Outer Roof Vents” which includes all four (4) vents, and the owner reserves the right to delete.

3.08 CENTER COLUMN ROOF SUPPORT REPLACEMENT

A. Temporarily support the roof/roof beams.
B. Remove the center support plate and rebuild per Drawings 11a and 11b.
C. Paint per steel replacement paint repairs in this section.
D. Payment is a separate line item “Center Column Support” which the owner reserves the right to delete.

3.09 BLIND FLANGE at CENTER ROOF VENT

A. Remove the center roof vent. Vent to become property of the contractor for disposal.

B. Furnish and install a neck, collar, and blind flange at the existing center roof vent that has been cut and constructed as shown in Drawing 03.

C. Payment is a separate line item "Blind Flange" which the owner reserves the right to delete.

3.10 INSTALL SIDEWALL LADDER – EXTERIOR

A. Remove existing ladder, grind flush all connections, and dispose. Salvage the vandal guard and fall prevention device.

B. Install a new ladder per OSHA dimensions and as shown in Drawing 05c. Reinstall fall prevention device and vandal guard. Add extension to fall prevention device as needed for 42 in. height.

C. Payment is incidental to safety railing (3.11).

3.11 INSTALL SAFETY RAILING

A. Furnish and install a new safety railing along the edge of the roof.

B. Install a 20 ft. section of railing at the edge with 2 ft. long sections 90º from rail at both ends.

C. Use 2.5 in. x 2.5 in. x **3** in. angle iron for the vertical posts, supports, top rail, and mid-rail.

D. Use 4 in. x **3** in. steel plate for the kick plate.

E. Use 6 in. x 6 in. x **3** in. steel plate for the baseplates.

F. All welds will be $^{3}/_{16}$ in. fillet welds.

G. Comply with OSHA Standard 1910.23 for hand rail installation, and all other applicable Federal, State, and local codes.

H. Surface prepare and coat in accordance with Section 09870 - Paint Work.

I. See Drawings 05a – 05b.

J. Payment shall be a separate line item ASafety Railing@ which the owner reserves the right to delete.

3.12 WELD CATHODIC COVERS and PATCH HOLES

A Remove all existing cathodic caps and bolts and other paraphernalia (including probes) from the roof. Cut and remove from the tank all wiring, conduits, brackets, pulleys, and associated paraphernalia for the existing cathodic protection system. This includes the control panel. Cap and plug remaining conduits and wiring per local, state, and federal electrical codes and regulations, whichever takes precedence. The control box and system are to be removed, but shall remain property of the owner. Grind smooth all unused brackets.

B. See Drawing 06.

C. Payment is a separate line lump sum item "Weld Cathodic Caps" and includes all caps. There are approximately two hundred and sixty (260) covers. Contractor to verify amount.

3.13 REPLACE ROOF ALIGNMENT TABS

A. Replace damaged alignment tabs for the roof channels.
B. Remove damaged tabs and grind flush.
C. Weld new 6 in. x 3 in. x ¼ in. tabs using ¼ in. full fillet welds.
D. See Drawing 07.
E. The quantity of sixty (60) alignment tabs is a dummy figure based on the last inspection. The owner reserves the right to increase or decrease this quantity, including deletion of the item. Payment is a separate line item "Alignment Tabs."

3.14 SIDEWALL ROOF SUPPORT REPLACEMENT

A. Temporarily support roof beams and replace supports at outer wall.
B. Grind old supports flush.
C. Weld a 4 in. long – 4 in. x 4 in. x ½ in. angle support at old support location.
D. Weld using ? in. full fillet welds.
E. Weld the beams to the supports using ¼ in. fillet welds.
F. See Drawing 08.
G. The quantity of forty-five (45) sidewall supports is a dummy figure based on the last inspection. Payment is a separate line item "Replace Roof Beam Chairs @ Sidewall."

3.15 REPAIR LEVEL INDICATOR

A. Remove the level indicator, float, cable, and all paraphernalia prior to tank blasting.
B. Clean the indicator and install a sticker decal with numbers and markings to match those existing on the device. Supply the owner with two (2) replacement decals. (Decals to be material common to sign and logos put on cars.)
C. Replace the cable with a new cable and clean and paint the pointer.
D. Abrasive blast clean and paint float per interior paint specifications. Seal all leaks by weld.
E. Reinstall the indicator after the tank has been coated and has cured. Use new stainless steel fasteners.
F. Payment is a separate line item "Repair Level Indicator" which the owner reserves the right to delete.

3.16 REPLACE LADDERS in PITS

A. Remove the existing ladder rungs from the three large pits. Make flush with the concrete wall.
B. Furnish and install a ladder for each pit.
C. Ladders to be 16 in. wide, with ¾ in. diameter rebar rungs, spaced every 12 in. on center. Provide a minimum of 7 in. of toe clearance.
D. Construct side rails of 2 in. x ¼ in. steel plate. Brackets to be 2 in. x ¼ in. bent plate. Bolt to concrete using ½ in. anchor bolts (typical of 4 bolts).
E. Galvanize all ladder components before installing.
F. See Drawing 10.

G. Payment is a separate line item “Pit Ladders” which the owner reserves the right to delete.

3.17 TIGHTEN COMPRESSION RING

A. Tighten the compression ring on the drain line in pit A.
B. Contractor to tighten bolts to stop leak in ring. It is the contractor’s responsibility to ensure fitting is tight after tank has been filled and drain line opened.
C. Payment is incidental to interior repainting.

3.18 ROOF HATCH

A. Remove the existing roof hatch. Hatch to become property of the contractor for proper disposal. Furnish and install a 30 in. diameter hinged manway on the tank’s roof.
B. Install a ¼ in. plate reinforcement ring as shown in Drawing 09.
C. Use full fillet welds on reinforcement plate and manway neck.
D. Payment is a separate line item “Roof Hatch” which the owner reserves the right to delete.

3.19 INSTALL TEMPORARY DOORWAY – OPTIONAL

This is a means and methods decision of the Contractor. If a cut is made, the Contractor will design and use access as detailed below.

A. Install a temporary 8 ft. x 8 ft. opening in the tank’s sidewall.
B. Install ¾ in. x 6 in. x 9 ft. long steel stiffeners on both sides of the opening prior to cutting the opening. Use ? in. full fillet welds.
C. Prior to commencement of blasting, but after equipment is inside, construct wood frame access per conceptual design Drawing 12.
D. Prior to commencement of blasting, construct and install vent hole covers on roof, and seal other openings.
E. Payment is incidental to interior repainting.

3.20 RADIOGRAPHS – SIDEWALL OPENING

A. Furnish all radiographic equipment, film, personnel, etc. necessary to perform radiographic inspection of completed welds in accordance with AWWA D100-96.
B. A minimum of three (3) radiographs will be required.
C. The radiographs will all be taken in one day at locations identified by the engineer, and in the engineer’s presence.
D. The radiographs will be developed on-site by the radiographer, and interpreted by the radiographer, but reviewed by the engineer.
E. All developed film will become property of the owner.
F. Cost for additional radiographic examination due to failed x-rays is the responsibility of the contractor.
G. Payment is incidental to interior painting.

3.21 WORK SEQUENCING

A. The following is NOT a ways-and-means decision of the contractor. It is accepted and good painting practice.

1. Complete ahead of all cutting and welding all surface preparation, such as immediate area lead paint removal.
2. Complete all welding repairs prior to commencement of any abrasive blast cleaning.
3. If aluminum vents are specified, do not install vent or lift to roof until after painting has been completed.
4. Remove all rail fall prevention devices before painting, and reinstall at completion. Do not install new fall prevention devices until all painting has been completed. Supply temporary fall prevention devices with steel cables during blasting and painting.
5. If exterior alternate is selected, abrasive blast clean and prime all repair items inside the tank. Power tool clean to a SP11 all exterior repairs, spot prime, and coat with alternate aluminum alkyd system.
6. Exterior base bid requires the roof to be abrasive blast cleaned by vacuum blasting. Therefore, all repair items are also abrasive blast cleaned inside the tank or containment, and primed. Weld repairs are to be spot power tool cleaned to a SP11, primed, and coated per Section 09870.

SECTION 09870
PAINT WORK – MILL LANE TANK

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Full Field Abrasive Blasting.
B. Lead Paint Removal.
C. Containment.
D. Painting.
E. Interior Cleaning and Disinfection.

1.02 REFERENCES

A. AWWA Standards
   1. D102 - 97 Painting Steel Water Storage Tanks.
   2. C652 - Disinfection of Water Storage Facilities.

B. SSPC and NACE Standards
   1. PA1 - Paint Application.
   2. PA2 - Measurements and Calibration.
   3. NACE Weld Standard.
   4. SP3 – Power Tool Clean
   5. SP6 - Commercial Abrasive Blast.
   6. SP10 - Near White Abrasive Blast.
   7. SSPC Guide 6 - Containment.
   8. VIS 1 (Visual standard for abrasive blasted metal).

1.03 WORK INCLUDED

A1. Exterior: Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a four (4) coat urethane system.

A2. Exterior Alternate: High pressure water clean, spot power tool clean to a SP3 standard, and apply a two (2) coat aluminum alkyd system.

B. Wet Interior: Abrasive blast clean to a SSPC-SP10 near white standard, and apply a three (3) coat epoxy polyamide system.

C. Pit Piping (4 pits): Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a two (2) coat epoxy polyamide. Note: There are four (4) separate pits. Paint all exterior covers, piping, etc per exterior specifications, either alternate.

Caution: In submitting the Base Bid for the exterior, be aware that there are equipment costs common to the interior and exterior. If the Owner selects the alternate, then some equipment (i.e. steel grit recycler, dust collector) will still be needed for the interior. Costs should be apportioned to the correct line item to protect Bidder regardless of which alternate is selected.

1.04 EXISTING CONDITIONS

A. Exterior: Aluminum system that tested for lead at 12% - 14% by weight, and chrome at 1.5% - 1.9% by weight.

B. Wet Interior: Epoxy system.

1.05 PAINTER QUALIFICATIONS

A. Contractor shall complete all coating and surface preparation.

B. Painter shall be specialized in industrial or heavy commercial painting, and experienced in removing lead based coatings.

C. See Instructions to Bidders – Qualification of Contractors.

1.06 SUBMITTALS

A. Submit the following with your annual prequalification:

1. Occupational Safety and Health Programs and certification that all site personnel have been trained as required by law.

B. Submit the following ten (10) days prior to preconstruction meeting:

1. Material Safety Data Sheets (MSDS).
    a. Furnish from all suppliers Material Safety Data Sheets for all applicable materials including, but not limited to, paints, thinners, and abrasive materials.
    b. Provide for employees one copy of all data sheets at the job site for employee access.
    c. Provide one copy to the owner. No work may commence without the complete filing.
    d. All sheets shall conform to requirements of SARA Right-to-Know Act.
2. Containment Design Plan.
3. Ventilation Design Plan. Include airflow calculations, model, and number of fans are to be listed.
4. Dehumidification/Heat Design Plan. Include airflow calculations, model, number of units used, connection details, and power source.
5. Lead Health & Safety Plan (LH&SP).
6. Site Specific LH&SP including:
    a. Work procedure for each job classification.
    b. Administration and engineering controls to be used during exposure assessment period and expected exposure.
    c. Personal hygiene procedure.
    d. Site personnel register (updated as needed).
    e. Qualifications of competent persons and responsibilities. At this point, multiple qualified people may be submitted.
    f. 24 hour job site contact person.
    g. Site map showing ingress/egress and locate all equipment.

7. Fall Prevention Plan and Site Specific Fall Hazard Evaluation:
    a. Site specific plan to contain a generic drawing of the existing structure and appurtenances of this tank and reflect safety changes specified for this project.
    b. Certifications for all spiders, scaffolding, stages, etc. to be used on the project. All certifications to be current, less than one year old.
    c. Provide safety apparatus for rescue personnel and retrieval equipment.

C. Submit the following within two (2) weeks after preconstruction meeting:
1. Designated OSHA Competent Person and qualifications, if not previously submitted.
2. Waste hauler and disposal facility.
3. Copy to owner of OSHA Lead Standard for Construction.
4. Submit manufacturer's invoice, with or without paint cost, to the engineer for review. Submittal will be used to identify the quantity of paint recommended by the manufacturer for a project of this size and design, and will be used to check the quantity actually delivered to the project. Submit all items in C prior to start of construction, or within two (2) weeks after the precon meeting, whichever is sooner.
5. Submit all power tools and attachments to be used during the project.

D. Submit the following within two (2) weeks of completion with final pay request:
1. Waste manifest.
2. Waivers of lien.
3. Copies of any formal worker safety or environmental citations received on the project.

1.07 OWNER'S RESPONSIBILITY

A. Drain the tank with seven (7) days notice, after contractor meets all precedent conditions of this contract.

B. Draw samples and test after chlorination; responsibility of good results remains with contractor. Poor test results could result in added costs to contractor, including re-chlorination, cost of water, plus possible liquidated damages.

1.08 DELIVERY and STORAGE of MATERIAL

A. Submit manufacturer's invoice, with or without paint cost, to the engineer for review. The submittal will be used to identify the quantity of paint recommended by the manufacturer for a job of this size and design, and will be used to check the quantity actually delivered to the project.

B. Cover bulk materials subject to deterioration because of dampness, weather, or contamination, and protect while in storage.

C. Maintain materials in original, sealed containers, unopened, and with labels plainly indicating manufacturer's name, brand, type, grade of material, and batch numbers.

D. Remove from the work site containers that are broken, opened, water marked, and/or contain caked, lumpy, or otherwise damaged materials. They are unacceptable.

E. Store the material in a climate controlled designated area where the temperature will not exceed the manufacturer's storage recommendations. Heat the storage area to the manufacturer's recommended minimum mixing temperature.

F. Keep equipment stored outdoors from contact with the ground, away from areas subject to flooding, and covered with weatherproof plastic sheeting or tarpaulins.

G. Store all painting materials in a location outside the tank.

H. Do not store or have on-site unapproved material, material from different manufacturers, or materials for different projects.

1.09 ACCESS and INSPECTOR SAFETY

A. Provide access to all portions of the project where work is being completed. Access must be close enough and secure enough to allow inspector to use inspection equipment without extensions.

B. Provide personnel to assist with access and to ensure contractor's access equipment is safely used.

C. Provide separate fall protection for owner and inspectors. Limit fall to 5 ft. vertically.

D. New safety tie-off points have been added to the interior roof for interior safety and on the bowl for safety lines under the exterior bowl. Do not rig equipment from these points. Provide separate fall protection cables and grabs for each tie-off point.

E. These specifications require the contractor to supply a separate fall protection cable and grab for each tie-off point for the inspector's use. The contractor is encouraged to provide a separate cable and tie-off for each of his personnel. The cables may be connected to the same tie-off point as the inspector's, but a separate cable and grab are required for each user.

1.10 INSPECTION and TESTING

A. Prior to the scheduled inspection, remove all dust, spent abrasive, and foreign material from the surface to be coated.

B. Furnish an instrument for measuring the wet film thickness, and also dry film thickness of each field coat of paint. The dry film thickness testing gauge shall be the magnetic type as manufactured by Elcometer Co., or the Nordson Gauge Co.; spring loaded model with two percent (2%) accuracy margin over a range of one-to-twenty-one (1-21) mils.

C. Certify to the owner that the specified paint has been applied at the paint manufacturer's recommended coverage, and to the specified thickness required. Also, certify that the paint has been applied in accordance with this contract.

D. Take all necessary steps, including dry striping by brush or roller, to ensure a holiday-free coating system.

E. The owner reserves the right to perform low voltage holiday tests on the exterior coating. The interior coatings are subject to low voltage holiday testing.

F. The owner and engineer reserve the right to perform destructive testing under conditions deemed necessary. Testing may include, but is not limited to, the Tooke thickness test and adhesion testing. Any damage caused by these tests will be corrected to specifications at the contractor's expense.

1.11 CLIMATIC CONDITIONS

A. Do not apply paint when the temperature, as measured in the shade, is below the manufacturer's required ambient and surface temperatures.

B. Do not apply paint (interior or exterior) to wet or damp surfaces, or during rain, snow, or fog.

C. Do not apply paint when it is expected the relative humidity will exceed 85%, or the surface temperature is less than 5° above dew point, or the air temperature will drop below the manufacturer's requirements for proper cure. Anticipate dew or moisture condensation, and if such conditions are prevalent, delay painting until the owner is satisfied the surfaces are dry.

1.12 APPLICATION

A. Complete all painting and surface preparation in strict accordance with these specifications, approved paint manufacturer's specifications, and good painting practices per SSPC.

B. Apply each coating at the rate and in the manner specified by the manufacturer. Check the wet film thickness every 200 sq. ft. to ensure each coat applied meets the dry film thickness range requirements.

C. Allow sufficient time for each coat of paint to dry or cure. Allow a minimum of twenty-four (24) hours between coats.

D. Apply exterior coating by brush and roller only. Spray application is not permitted without prior approval of the engineer. Even with prior approval, responsibility for damage still remains with the contractor.

E. Painting or abrasive blast cleaning may be delayed because of poor coverage, the possibility of the paint drying too rapidly, or the potential damage from overspray and/or dry spray resulting from wind. In all cases, responsibility for damages rests with the contractor.

F. The contractor is responsible for the appearance of the finished project, and is warned to prevent contact with any freshly applied coating. Removal of rigging shall be completed so not to mar or damage the coating.

G. Coatings shall be applied using methods to eliminate roller or spray marks in the finished product on the exterior.

H. Stripe coat all wet interior welds and crevices prior to application of full coat. This includes all roof beams, bolts, nuts, and supports, but not the area between the top of the channel and the roof. Spray into this area as best you can.

I. Additional coats required for coverage or to eliminate roller or spray marks are responsibility of the contractor at no additional cost to the owner.

J. Use of pole extension on spray guns is prohibited for exterior and interior application.

1.13 ENVIRONMENTAL SAMPLING

A. Collect four (4) pre-project soil samples, compile a map, and collect four (4) post-project soil samples. Send samples to a NLLAP certified lab and test for total lead and chrome.
B. Sample waste from each portion of the project and keep waste segregated. Send to a NLLAP certified lab and test for TCLP for eight metals.
C. The owner reserves the right to collect samples and to send them their selected lab. This will be determined at the preconstruction meeting.
D. Pay all lab fees for 8 metals TCLP analysis on waste samples, total lead, and chrome on soil samples, and any subsequent testing fee if clean-up is warranted.
E. Complete all sampling in accordance with EPA protocol.

PART 2 - PRODUCTS

2.01 EXTERIOR TANK CLEANER

A. United 727 Weather-Zyme as manufactured by United Laboratories, 320 37th. Ave., St. Charles, IL 60174, 1-800-323-2594.

2.02a ABRASIVE - COAL SLAG - INTERIOR

A. The coal slag shall be 20-40 grade, or 30-60 grade.
B. The abrasive shall be free of moisture, water soluble contaminants, dust, and oil.
C. The abrasive shall be stored and covered to prevent moisture contamination.
D. All leaking or spilling bags shall be removed, and affected areas properly cleaned.
E. All slag abrasive shall meet the requirements of SSPC-AB1 "Mineral and Slag Abrasive" June 1, 1991-Grade 3.
F. The use of silica sand, flint sand, and glass beads is prohibited.

2.02b ABRASIVE with BLASTOX - EXTERIOR

A. The abrasive shall be 20-40 grade, or 30-60 grade coal slag blended with Blastox. The mixture shall be proportioned by supplier, but not less than 15% Blastox. B.
B. Other low dust abrasive may be used at the same proportion.
C. The abrasive shall be free of moisture, water soluble contaminants, dust, and oil.
D. The abrasive shall be stored and covered to prevent moisture contamination.
E. All leaking or spilling bags shall be removed, and affected areas properly cleaned.
F. All slag abrasive shall meet requirements of SSPC-AB1 Mineral and Slag Abrasive June 1, 1991-Grade 3.
G. The use of silica sand, flint sand, and glass beads is prohibited.

2.02c RECYCLABLE STEEL GRIT - ALTERNATE

A. Use recyclable steel grit size G-25 to G-50.
B. The abrasive is to be free of moisture, water soluble contaminants, dust, and oil.

C. The abrasive is to be stored and covered to prevent moisture contamination.
D. All leaking or spilling containers are to be removed, and affected areas properly cleaned.
E. All recyclable steel grit shall meet requirements of SSPC-AB1 Metallic Abrasives June 1, 1991.

2.03 ACRYLIC URETHANE - 4 COAT SYSTEM - EXTERIOR

A. The coating shall be an acrylic urethane system.
B. Tnemec Series 90-97/66/1074/1074UV has been selected as the coating standard. Use only products from one approved manufacturer.
C. The contractor is advised to follow all rules for safety while using isocyanates.

2.04 EPOXY POLYAMIDE - 3 COAT SYSTEM - WET INTERIOR

A. Three (3) coat epoxy polyamide system meeting all National Sanitation Foundation certification standards for potable water contact.
B. Tnemec Series $91H_20/20/20$ has been selected as the coating standard. Use only products from one approved manufacturer.
C. Interior and exterior coatings may be from different manufacturers.

2.05 EPOXY POLYAMIDE - 2 COAT SYSTEM - PIT PIPING

A. Two (2) coat epoxy polyamide system.
B. Tnemec Series $91H_20/20$ has been selected as the coating standard. Use only products from one approved manufacturer.

2.06 TINTED ALUMINUM ALKYD – ALTERNATE

A. The coating shall be a tinted aluminum alkyd.
B. Induron Series P-30/Armorlux/Armorlux Color Chrome has been selected as the coating standard.

2.07 SEAM SEALER

A. Sika Flex 1A as manufactured by Sika Corporation has been selected as the coating standard.

2.08 COLOR

A. Supply the engineer with a color chart to allow the owner ample time for color selection.
B. Factory tint the intermediate coat(s) if similar to the finish coat. Tinting shall be sufficient to allow visibility of the dissimilar color from 1 ft., and from 100 ft.
C. The owner will select the color, after evaluating the bids. The owner recognizes the additional cost for deep color paints. All bids shall be based upon common "sky-blue" color. After the color is selected, document the difference in cost and quantity used for the selected color, and the owner will issue a change order for the exact cost differential only.

D. Documentation of additional cost is the responsibility of the contractor, and must be supplied two weeks before application. If necessary documentation is not supplied, any additional cost will be borne by the contractor. If selection/application time is less than two weeks, then as soon as possible. The owner has the right to switch to a less expensive color; therefore, the contractor must submit cost before ordering paint.

2.09 CONTAINMENT SHROUDS

A. All shroud material and superstructure shall be non-penetrating, nylon rip-stop material manufactured by Eagle Industries or approved equal. Approval of alternate material will be based on density, weight, support strength, stitching, reinforcement, home office experience, and staff assistance.

2.10 CONTAINMENT CONNECTIONS to TANK

A. Steel Plating and other Structural Shapes - ASTM A36
B. Bolts - ASTM A307
C. Welds - E70XX Electrodes

2.11 DUST COLLECTORS - AIR FILTRATION UNITS (2)

A. Furnish and use 2 - 40,000 cfm dust collectors equal in filtration capacity to Eagle Jet Clean, Model 40D, or 40E. Other units may be used, but their substitution will be evaluated on efficiency at 0.5 micron size and airflow movement.
B. Substitution of steel grit blasting may decrease the requirement of above. New requirements will be defined by the engineer based on the efficiency of the contractor's equipment.
C. Furnish HEPA filters for dust collection.
D. Number of dust collectors shall be sufficient to supply a 50 ft./minute downward draft at most areas. An average may be considered. Determination of actual containment plan will be the deciding factor. Calculations of airflow shall be included in the containment submittal.
E. Use only new filters or filters certified clean.

2.12 DECONTAMINATION FACILITY

A. Provide a climatic controlled decontamination facility. The decontamination facility must include a minimum of three separate areas: a dirty area, a showering area, and a clean area. The unit shall be as manufactured by Eagle Industries of Louisiana, Inc.
B. Entry and exit into the showering room must be through an approved airlock designed to prevent cross-contamination between any two areas.
C. Equip the clean room with adequately sized lockers for each worker to secure and store clothing, valuables, and other personal belongings.
D. Equip the decon facility with an onboard ion exchanged lead filtration system capable of filtering all wastewater generated during hand washing operations,

showering, laundering of towels and clothing, or from any other water used in cleaning.

E. Recordkeeping log signed by each employee upon exiting that time was provided and decon procedures have been followed.

2.13 DEHUMIDIFICATION and HEATING - WET INTERIOR

A. Supply dehumidification/heating units capable of maintaining dew point temperature lower than 15° below surface temperature during blasting and lower than 5° during coating application and cure, and steel temperature maintained above the manufacturer's printed requirements.

B. Size units for complete air change every one hundred and twenty (120) minutes minimum.

C. Supply a dehumidifier designed with a solid desiccant having a single rotary desiccant bed capable of continuous operation, with full automatic operation. Do not use liquid desiccant, granular, or loose lithium chloride drying systems. Refrigerant systems may be used in conjunction with desiccant units.

D. Plumbing, noise control, insulation, venting, and all incidental items needed to provide proper ambient conditions shall be included as one package.

E. Supply and maintain a power source for the dehumidifier and heater, unless otherwise specified.

2.14 EQUIPMENT COVERING

A. Use material that is 8 - 20 mils thick and 100% impermeable to cover pumps, motors, and other vulnerable equipment.

B. Use material resistant to tear and/or rip by mechanical action from abrasive blasting during blasting operations.

C. Make coverings airtight by use of duct tape at the openings, or other suitable measures.

D. Meet with representative of equipment owner to verify covering will not damage equipment. Damage is contractor's responsibility. This includes not only the owner's equipment, but also telecommunication antennas, cables, buildings, controls, etc.

2.15 GROUND TARPS

A. Use impermeable ground tarps, 20 mils thick.

B. Use ground tarps able to withstand the anticipated construction traffic without tearing or separating.

2.16 SUBSTITUTIONS

A. All coatings specified and approved herein have met or exceeded a specified list of ASTM standards. The materials specified are the standard to which all others shall be compared.

B. The purpose is to establish a standard of design and quality, and not to limit competition. All ASTM tests were performed in the presence of a representative of Dixon Engineering, Inc.

C. Other manufacturers wishing to have their products approved have also had their coatings tested using the same representative of Dixon Engineering, Inc., and the same test methods. The manufacturers of those system that have met all ASTM Standards have been given a letter of acceptance as an equal coating. Any bidder wishing to use materials other than those specified shall verify with the manufacturer if he has a letter of acceptance by Dixon Engineering, Inc. The engineer will have on file a list of approved coating products and manufacturers for specified applications.

D. Approval by ANSI/NSF Standard 61 is also a requirement for interior coatings.

E. The selection of coatings also has taken into consideration the manufacturer's current and past performance on availability, stocking, and shipping capabilities, ability to resolve disputes, and any applicable warranties.

2.17 AIR DRYER for COMPRESSOR

A. Use air dryers sufficient to remove 98% of the moisture from the compressed air. Size air dryers based on total cfm using manufacturer supplied charts. Upon request, supply charts to engineer for verification.

B. If the fan is not operable, cease all blasting until the dryer is replaced or repaired.

C. Supply air dryer with an air draw-off valve to check air for dryness, oil contamination, and cleanliness on the outlet side of the air dryer.

D. For cleaning operations, draw clean air from the outlet side of the air dryer.

PART 3 - EXECUTION:

3.01 PRE-SURFACE PREPARATION – EXTERIOR – BASE - PITS

A. Low pressure water clean at 4,000 psi all surfaces and appurtenances to remove mildew, soot, and other contaminants.

B. Use a biodegradable algicide for the exterior approved by the engineer.

C. Hand wash with a higher concentration of algicide any mildew not removed by power washing.

D. Mix algicide at level recommended by manufacturer, but not at a level that could result in an environmental problem.

E. Pump water out of pits and ventilate until dry.

3.02 SURFACE PREPARATION - INTERIOR

A. Low pressure water clean at 4,000 psi all surfaces and appurtenances to remove minerals, soot, and other contaminants.

B. All abrasive and grit material used, and all equipment supplied shall be subject to approval of the engineer. The abrasive or grit shall be sharp enough and hard enough to remove the mill scale, rust, and paint.

C. Rate of cleaning to be determined by the engineer.

3.03 POWER TOOL CLEAN (SSPC-SP3) with VACUUM

A. Solvent clean all visible grease, oil, salts, and residue.

B. Power tool clean all surfaces and appurtenances to a SP3 finish where steel is exposed or coating is abraded. Remove all loose mill scale, non-adherent rust, and all loose paint.

C. Feather all edges of adjacent coating a minimum of 3 in. with 3M Scotch Brite Clean ‘n Strip discs for smooth transition.

D. Attach a vacuum to all power tools. Size vacuum per manufacturer’s recommendations for optimal recovery of spent paint debris. Attach a HEPA filter as required.

E. Disposal of the vacuumed waste is the responsibility of the contractor. Follow instructions on waste containers and store as directed by the owner.

3.04 COMMERCIAL (SSPC-SP6) DRY BLAST – EXTERIOR - BASE

A. Abrasive blast clean all surfaces and appurtenances to a commercial finish (SSPC-SP6), latest edition thereof.

B. Maintain a profile of 1.0 - 2.0 mils on abrasive blast cleaned surfaces.

3.05 NEAR-WHITE (SSPC-SP10) DRY BLAST - INTERIOR

A. Abrasive blast clean all surfaces and appurtenances to a near white finish (SSPC-SP10), latest edition thereof.

B. Maintain a profile of 2.0 - 3.0 mils on abrasive blast cleaned surfaces.

C. All interior abrasive blast cleaning is to be completed and all spent abrasive removed, and surfaces thoroughly cleaned prior to any primer application.

D. Once an area is acceptable for painting, apply all coats and allow coating to cure to touch prior to resumption of blasting. The entire tank may be blasted before painting, as long as dehumidification holds the blast. It is the contractor’s discretion and responsibility to determine if the entire tank is to be blasted, or what size area is to be blasted and coated (all coats).

E. The contractor is responsible for supplying heat and dehumidification to maintain blast conditions.

3.06 HIGH PRESSURE WATER CLEANING

A. Solvent clean all visible grease, oil, salt, algae, and residue in accordance with SSPC-SP1. An algicide may be necessary.

B. High pressure water clean all exterior surfaces and appurtenances at 5,000 – 10,000 psi to remove all dirt, chalk, algae, other foreign material, and all brittle or loose coating, rust, and mill scale. Operational pressure will be determined by the engineer based on field conditions.

C. Maintain a water jet nozzle distance of 2 in. – 10 in. away from the surface.

D. Hold water jet nozzle with 0° or 15° tip perpendicular (90°) to the surface at all times.

E. Only use machines rated at and capable of achieving and maintaining 5,000 – 10,000 psi. Do not use rotating/reciprocating nozzle to increase a pressure washer rated lower than required pressure.
F. Do NOT exceed a rate of 6 sq. ft./minute.
G. Feather all edges per Item 3.03 above.

3.07 DEHUMIDIFICATION/HEATING

A. Control the environment with dehumidification equipment twenty-four (24) hours a day during blast cleaning, coating operations, and cure time. Maintain minimum ambient conditions until cure completion.
B. Supply sufficient dry air to assure the air adjacent to surfaces to be abrasive blast cleaned or coated does not exceed minimum required humidity at any time during the blasting, coating, or curing cycle.
C. Monitor and record ambient conditions twenty-four (24) hours a day throughout abrasive blast cleaning and painting work. Dehumidification equipment to be equipped with Munters ExactAire monitors. Monitor to be capable of being programmed with condition parameters and of alerting user/owner via phone, fax, pager or e-mail of condition or equipment failures. An approved monitoring device may be used instead of Munters ExactAire system, Dickson Model TH6, or equivalent.
D. Test interior ambient conditions three (3) times a day, or more often with rapid weather changes. Record daily readings. Adjust or add equipment as required to maintain steel temperatures, dew point, and humidity. (This is a check on and in addition to the recorder in paragraph C above.)
E. Use a minimum11,250 cfm dehumidification unit for tanks 4,000,000 to 6,000,000 gallons. This tank is extremely large diameter. Consider supplying two – 9.000 cfm units with feed from opposite sides, and provide fans inside to move the air.
F. Surround the units with noise suppressant enclosures, unless units are sound attenuated or have noise suppressants. More extensive enclosure requirements are required in residential areas where the machines must run all night. Noise suppressant level needed will depend on the size of dehumidification units, their efficiency, and their locations. Provide noise suppressant enclosures of sufficient height and thickness to lower noise to an acceptable level for neighbors. Also provide noise suppressant enclosures for generators.
G. Auxiliary heaters may be necessary to maintain the surface temperature at a level acceptable to the coating manufacturer's application parameters. This auxiliary equipment must be approved for use by the manufacturer of the dehumidification equipment and shall meet the following requirements. Auxiliary ventilation equipment and/or dust collection equipment can affect the exchange rate.
    1. Heaters shall be installed in the process air supply duct between the dehumidifier and the work, as close to the work as possible. Air heaters are not acceptable as a substitute for dehumidification.

2. Use only electric or indirect gas fired auxiliary heaters. No direct fired space heaters will be allowed during blasting, coating, or curing phase.

H. Seal off the work, allowing air to escape at the bottom of the space away from the point where the dehumidified air is being introduced. Maintain a slight positive pressure in the work unless the dust from the blasting operation is hazardous.

I. Where necessary to filter the air escaping the space, design the filtration system to match the air volume of the dehumidification equipment in such a way that it will not interfere with the dehumidification equipment's capacity to control the space as described herein. Do not recirculate the air from the work or from filtration equipment back through the dehumidifier when coating or solvent vapors are present. Outside air is to be used during those periods.

J. Securely attach duct work to the equipment and work to minimize air loss. Design hoses with sufficient capacity and minimal bends to reduce friction loss.

K. Dehumidification and its operating power source are incidental to the respective painting project (wet or dry interior).

L. Set-up and operate equipment twenty-four (24) hours (or earlier) prior to start of blasting, and twenty-four (24) hours after all water has been removed from the tank.

M. Ground storage reservoirs 1,000,000 gallons and larger require dehumidification year round, including summertime.

3.08 ACRYLIC URETHANE - 4 COAT SYSTEM - EXTERIOR

A. Apply a four (4) coat urethane system to all prepared surfaces.

B. Abrasive blast cleaning and paint requirements have been previously defined. Apply all coatings by brush and roller. Spray application is prohibited.

C. Apply the coating at the following rates:

Coat	Tnemec Series	Minimum D.F.T.	Maximum D.F.T.
Primer	90-97	2.5 mils	3.5 mils
Intermediate	66	2.0 mils	3.0 mils
Intermediate	1074	1.0 mils	2.0 mils
Topcoat	1074UV	1.0 mils	2.0 mils
Total		6.5 mils	10.5 mils

D. The contractor should be advised that Dixon Engineering, Inc. will take mil readings on the exterior per SSPC-PA2 which requires gauge adjustment from magnetic plane to peak plane.

3.09 3 COAT EPOXY - INTERIOR

A. Apply a three (3) coat high build epoxy paint system to all prepared surfaces and appurtenances.

B. Abrasive blast cleaning and paint requirements have been previously defined.

C. Apply each coat at the following rates:

Coat	Tnemec Series	Minimum D.F.T.	Maximum D.F.T.
Primer	$91H_20$	2.5	3.5
Intermediate	20-1255	3.5	4.5
Topcoat	20-WH02	3.5	4.5
Total		9.5	12.5

D. Supply each coat in the color specified, or in color approved by the engineer. No color bleed-through should occur if proper application rates are observed.

E. Apply all coats in uniform color and sheen without streaks, laps, runs, sags, cloudy, or missed areas.

F. Allow a minimum of twenty-four (24) hours between coats Additional time may be necessary if low temperatures require an increase in the necessary cure time.

G. MAINTAIN FORCED VENTILATION A MINIMUM OF SEVEN (7) DAYS AFTER TOPCOAT ON ALL EPOXY INTERIOR SYSTEMS. Record variations of the standard procedures (roof hatch closure because of rain, etc.), and submit to the engineer. External heat is required if, in the opinion of the engineer, the integrity of the coating is endangered by cold weather, or if additional cure time will delay the project beyond the completion date.

H. Correct all defects before application of the successive coat. Striping may be necessary to ensure a holiday-free coating system.

I. On large tanks, the contractor may elect to apply coating to an abrasive blast cleaned area. The contractor must apply all three (3) coats and allow twenty-four (24) hours cure time on the topcoat before abrasive blast cleaning may be resumed. The entire interior must be pressure washed at the end of the project.

J. Maintain internal air movement at 20 ft., at 10 ft., and at 1 ft. above the floor for seven (7) days after painting. Suspend 2,500 cfm fans in the air from the safety grabs – 2 at each elevation at 90° to the manholes at completion of painting.

3.10 TINTED ALUMINUM ALKYD

A. Apply to all prepared surfaces and appurtenances a three (3) coat alkyd aluminum system.

B. Surface preparation and paint requirements have been previously defined. Apply all coatings by brush and roller. Spray application is prohibited.

C. Apply each coat at the following rates:

Coat	Induron Series	Minimum D.F.T.	Maximum D.F.T.	Color
Primer	P-30 (spot)	2.0	3.0	
Intermediate	Armorlux	1.5	2.5	Mix Armorlux Aluminum and Armorlux Blue 50/50 as tint
Topcoat	Armorlux Color Chrome	1.0	1.5	J-1042 Blue
Total		4.5	7.0	

D. Remove all roller marks.

3.11 2 COAT EPOXY - PIT PIPING

A. Apply to all prepared areas a two (2) coat epoxy system.

B. Apply an epoxy primer coat (beige), and an epoxy topcoat (white).

C. Apply each coat at the following rates:

Coat	Tnemec Series	Minimum D.F.T.	Maximum D.F.T.
Primer	$91H_20$	2.5	3.5
Topcoat	20-WH02	3.5	5.5
Total		6.0	9.0

D. Each coat shall be the color specified and shall be approved by the engineer.

E. No color bleed-through should occur if proper application rates are observed. All coats shall be uniform in color and sheen without streaks, laps, runs, sags, cloudy, or missed areas.

F. A minimum of twenty-four (24) hours shall be allowed between coats.

3.12 SEAM SEALING

A. Seam seal all roof appurtenances at the roof-to-appurtenance lap seam. This includes all cathodic protection covers, roof hatches, vents, level gauges, etc. Seal using caulking gun, and then fillet the caulk with a spatula from the bottom of the roof plate out ½ in. – 1 in. This includes existing appurtenances.

B. Payment should be included in the line item of the repair – sealing is incidental.

C. Seam seal roof seams and roof-to-girder seams where directed by the engineer. Seal with a caulking gun filling cracks and then fillet down ½ in. – 1 in. from the bottom to the roof plate. If any seams are filled, it will only be seams with less than ½ in. gap using this price.

D. Payment will be on a linear foot basis.

E. Payment will be a separate line item "Seam Sealing." The figure of 1,000 linear ft. is a "dummy" figure. The owner reserves the right to increase or decrease this quantity, or delete this item.

3.13 PROTECTION of NON-WORK AREAS

A. Protect all non-blasted surfaces prior to all abrasive blast cleaning. Thoroughly cover the fill/drain pipe, overflow pipe, and all other openings. Do not permit abrasive or paint chips to enter into the piping or distribution system. Use watertight seals on the pipes.

B. Protect and seal all controls (even if they are not in the immediate work area) that are in danger from the project. Work with the owner so all controls are shutdown or vented if necessary.

C. Cover the pit with boards and tarping to prevent debris from entering. Remove all debris, spent abrasive, etc. from the pit at project completion.

D. Protect all areas not requiring painting, including all electrical boxes for the controls, cathodic protection rectifiers, relay antennas, insulation, conduit, safety devices, etc.

3.14 DISINFECTION

A. Disinfect the completely painted structure in accordance with AWWA Standard C652 Chlorination Method No. 3.

B. Furnish the material and labor necessary to disinfect the structure in the required manner. Assist owner during filling and sampling. Promptly repair any defects in the work that may appear.

C. Do not allow water to enter the distribution system until the structure is proven chemically and bacteriologically safe.

D. Water vented to waste may not contain any substances in concentrations that can adversely affect the natural environment. No total residual chlorine may be measured in water discharged to surface water.

E. Pay all additional expenses if it is necessary to repeat the testing and disinfection procedure as the result of defective work or defective testing.

3.15 PIPING – PIT

A. Abrasive blast clean to a commercial grade (SSPC-SP6) all steel, ductile, or cast iron pipes and valves (fill line for bypass) in the pit, and apply a two (2) coat epoxy system.

B. Stripe to eliminate holidays in crevices, flanges, bolt heads, etc. Painting includes steel or cast pit covers (top and bottom).

C. Payment shall be a separate line item "Pit Piping" which the owner reserves the right to delete. Payment is lump sum and includes all four pits.

3.16 CONTAINMENT - RIGID FRAME - ABRASIVE BLASTING – BASE BID

A. Furnish and install a total containment system to be used during all exterior dust generating work in accordance with SSPC-Guide 6-Class 1A. System shall be rigid in-place.

B. This specification is intended to be performance based. Alternative procedures to accomplish the same purpose of dust or lead elimination may be submitted for review. The final determination if the alternate performs as well as total containment will rest solely with the engineer. Printed material and test results by independent firms will be considered, but not govern. Rejection of an alternative after bid opening will not relieve the contractor of any responsibility to complete the work as bid unless his bid states his bid is to be withdrawn if the alternate is rejected. Submit a sketch of all alternate containment procedures with bid.

C. Contain the spent abrasive and paint chips to an area immediately under the structure. No abrasive release outside the structure will be permitted. All methods of shielding shall contain the abrasive within the confines of the shrouds. The shrouds will be erected on all sides of the tank for 360^{o}, including roof and ground.

D. Containment system to be a rigid system, 99% efficient Type 1-A in accordance with SSPC-Guide 6 - guide for containing debris generated during paint removal operations.

E. System to be a regular Scaf-Lite Scaffold Sheeting as manufactured by Eagle.

F. Overlap all seams by 6 in. Completely seal all seams by stitching, taping, caulking, or other approved sealing measures.

G. Immediately replace any damaged sheets. Discontinue abrasive blast cleaning operations until the damaged shrouds are replaced or repaired.

H. A rigid frame containment (3.54a), or the standard TEPE Class 1A (3.54b) is bid as the contractor's option. Either alternate is acceptable to the owner. Because of the tank's low profile and large circumference, it may be easier to maintain working scaffold around the tank 6 ft. higher than the sidewalls. A roof bonnet with cables, center support, and scaffold wall support is acceptable. Collapse and tie-off the bonnet nightly after all spent abrasive has been removed from the roof.

I. Scaffold shall tie into roof past the point where a vacuum blast machine can work. Cover and seal top of scaffold over edge of roof. Open this area when roof is being blasted. Vacuum blast the roof. Vacuum blast of sidewalls will not be permitted. All roof appurtenances are being removed and replaced. No open blasting of any item will be permitted. Blast new appurtenances inside containment, prime, and weld in-place. Power tool clean to a SP11 weld burns on exterior, and repair the coating.

3.17 CONTAINMENT OPENINGS

A. Design a means of ingress and egress of the containment structure. Access shall be through a resealable door with an airlock.

B. Size of the structure shall be 8 ft. x 8 ft. x 6 ft. high. Dedicate one section of the scaffolding. Construct the chamber out of 6 ft. high scaffold sections. Install the scaffold so the majority of the scaffold is extended out from the containment. Minimum clear walking height shall be 54 in. Minimum width shall be 42 in.

C. Fabricate the opening for exhaust air piping with a minimum 18 in. long tunnel firmly attached. Maintain the exhaust piping in as straight a line as possible to avoid restricting airflow. Exhaust air attachments may be elsewhere other than the entryway if your Lead Health and Safety Director determines it an unsafe condition.

D. Supply an operating HEPA vacuum in the entryway to vacuum off workers leaving the containment. Maintain vacuum clean and serviced.

3.18 GROUND COVER DURING WATER CLEANING – EXTERIOR ALTERNATE

A. Protect the ground from contamination. Tarp at least 25 ft. from the tank's base.

B. Lap all ground tarps a minimum of 2 ft.

3.19 GROUND COVER – RIGID FRAME CONTAINMENT

A. Protect the ground from lead contamination. Include the area inside the containment, and a 25 ft. diameter around the outside of the containment.

B. Lap all ground tarps a minimum of 2 ft. Lap the inside ground tarp up 2 ft. on the outside of the vertical shrouds. Lap the outside tarps 2 ft. under the inside tarps with slots **for scaffold**. This will prevent loss of abrasive material between the ground and vertical shrouds.

3.20 EROSION MESH SCREEN AROUND PERIPHERY – WATER BLASTING – EXTERIOR ALTERNATE

A. Use soil erosion mesh screen around the periphery of the ground tarps so all runoff water passes through the screens. Location of the screens may be reduced by local topography. The runoff water should be diverted from any storm sewer or surface body of water.

B. During water blasting procedures, efficiency of the ground capture depends on wind speed and direction. If, in the opinion of the engineer, the wind speed is too great to allow the required efficiency, cease all work. Be aware of potential problems and cease all work before the problems occur.

3.21 TANK CONNECTIONS

A. In submittal, request approval of all welding and cutting on the tank.

B. Cut all approved holes into tank with rounded corners.

C. Use a welder certified to complete the type and position weld necessary for attachment.

D. All steel must be cleaned of lead paint by approved method before cutting or welding.

E. Seal all openings with wood covers, or wood framed structures for tight climate control.

3.22 WORKMANSHIP

A. The intent of these specifications is to provide the material and workmanship necessary to produce a first class job.

B. Complete all welding strictly in accordance with the most recent publication of AWWA D-100 Specifications, the most recent American Welding Society Specifications, and the most recent ASTM Standards, where applicable. Perform welding in a manner satisfactory to the engineer.

3.23 DAILY SHUTDOWN

A. Clean all ground tarps daily. Collect all debris and store in barrels. Roll all tarps for storage, including all tarps inside containment. The purpose is to prevent the debris from being blown off the tarps.

B. Keep interior waste segregated from exterior water blasting waste. Testing and disposal of exterior waste are incidental to exterior repainting, either alternate. Item 3.73 is included with this item.

3.24 DUST CONTAINMENT – EXTERIOR

A. Do everything within industry standard to minimize dust as a nuisance. Required procedures include: angle of abrasive impact, direction of nozzle spray, orifice pressure, and work stoppage due to wind speed or direction.

B. Complete any additional measures required in these specifications. There will be no negotiations for extra compensation for nuisance complaints and corrective measures.

C. Fully inspect the area, land use, and other pertinent local conditions prior to bidding exterior work.
D. Do not permit dust, abrasive, or paint chips to fall a distance beyond the property line or ground cover.
E. Do not permit any visual dust release when transferring abrasive from either the interior or exterior of the structure to the dumpsters. Suppress dust with tarps or water, or other pre-approved method.

3.25 DUST CONTAINMENT - INTERIOR

A. Do everything within the contractor's power to minimize dust as a nuisance.
B. No visible dust release is allowed from roof openings and other access openings. Seal or close all openings prior to blasting (see ventilation requirements).
C. Contain the exhaust fans in a semi-rigid structure with venting to inside of exterior containment system. This operation is sufficient when containment is in-place and the air filtration unit is operating. If exterior work is not under progress or if exterior is water dampened, connect the air filtration unit directly to the venting semi-rigid structure.
D. Immediately replace all damaged tarpaulins.

3.26 VENTILATION REQUIREMENTS

A. Supply mechanical ventilation sufficient to change air in the tank six (6) times each hour.
B. In calculating air exchange, the dust collector air capacity can be considered a part of the air being changed up to 50% of ventilation requirements.
C. Use roof or shell manholes with fans to move the required air.
D. Ventilate wet interior areas a minimum of seven (7) days after completion of painting, or longer until the wet interior coating has fully cured. Maintain ventilation at the rate of two (2) complete air changes per hour. See note in 3.15.J to avoid stratification.
E. Cost of ventilation is incidental to respective paint project.
F. Additional ventilation openings may have to be installed by the contractor. Submit size, details, and location(s) for approval by the owner prior to cutting any opening. All costs associated with repairs by a certified welder are incidental.
G. Connect the air filtration unit per this Section, Item 3.62 Dust Containment - Interior. All fans on the roof and sidewall must blow in. If all openings are not needed for ventilation, seal them. Zero release to the atmosphere will be permitted. Fans will be reversed during paint cure.
Note: Large opening for equipment access is to be framed off. Dehumidified air should be added at this side and air filtration pulled from other manholes or roof vent holes.

3.27 TESTING and CLEAN-UP of WASTE

A. Daily collect all spent abrasive from the ground tarps and dispose in the required receptacles.

B. Furnish containers with proper labels for storage of the spent debris. Containers shall meet requirements of the EPA (or their local counterpart) for hazardous waste disposal. The spent abrasive will be moved directly from the tank into the waste containers. The containers will remain until final test results have been received. Furnishing containers with covers will be incidental to respective repaint, and will not be affected by the owner's final selection of respective interior or exterior disposal.

C. There are accepted procedures for abrasive blast cleaning and paint removal that do not generate a hazardous waste. Sometimes it is more economical and safer to generate a hazardous waste than to use these procedures. That is a "ways and means" decision by the contractor. If TCLP testing determines the waste abrasive to be hazardous, the contractor will be assessed a $500 fee to obtain an EPA generator number and for the additional required paperwork. If the contractor plans to dispose the waste as hazardous, include this cost in the respective paint item. If the contractor tries other procedures (Blastox, EPTOX, steel, etc.) and the waste is still hazardous, this fee will still be assessed.

D. If procedures are properly followed, all waste should be non-hazardous.

3.28 WASTE DISPOSAL - NON-HAZARDOUS

A. If after testing of the spent abrasive material the TCLP tests indicate the abrasive is not a hazardous waste, dispose the abrasive in a waste disposal facility.

B. All waste shall be handled by a licensed hauler. Supply the owner with all proper documentation of the final disposal site. The actual bill of lading and all manifests will be required prior to any payment.

C. Payment for this waste disposal is incidental to interior or exterior painting.

3.29 HAZARDOUS WASTE DISPOSAL by CONTRACTOR - LEAD CHROME PROJECTS

A. Contract directly with a licensed hazardous waste hauler who is properly licensed in the State of Virginia to haul hazardous material.

B. Transport the debris for treatment to a licensed hazardous waste treatment site.

C. The contractor will not be paid any retainage until paperwork has been submitted, including submittal of the hazardous waste manifest. An original of the hazardous waste manifest shall be returned to the owner.

D. Remove all hazardous waste from the site within thirty (30) days of completion of the blasting portion of the project.

E. Payment for disposal of hazardous waste is the responsibility of the contractor.

3.30 DOCUMENTATION

A. Supply proper documentation of storage, transportation and treatment, or disposal of the waste to the owner. The owner will retain sufficient funds to pay for hazardous waste transportation, treatment, and any possible fines until all documentation has been received. This retainage will be held, even if the waste has tested non-hazardous.

3.31 HAND WASH FACILITY

A. Provide OSHA approved hand wash facility with running water. Hot water is not required.

B. Stock facility with soap and towels, and keep supply replenished.

3.32 CATHODIC PROTECTION REMOVAL

A. Remove existing cathodic protection anode system, including all paraphernalia and connections, wires, etc.

B. Work is incidental to wet interior painting

3.33 PROJECT COMPLETION

A. Clean all tarps (roof, vertical, and ground) before the dust stuck on the tarps can be released to the atmosphere.

3.34 LIGHTING of WORK SPACE

A. Provide durable lighting fixtures designed for the intended work environment for use during blasting, painting, and during all inspections.

B. Encase portable lamps in a non-conductive, shatterproof material. Use only heavily insulated cable with an abrasive resistant casing.

C. Install all temporary electrical items in accordance with all local, state, and federal codes, including OSHA.

D. Protect from paint overspray and damage from abrasive materials.

E. Measure required illumination during surface preparation and coating application at the work surface. Supply 50 ft. candles minimum illumination during blasting and painting and 200 ft. prior to and during inspection, per SSPC Guide-12. Inspect the prepared surface at the higher illumination prior to calling for inspection. All work must conform to specification requirements prior to the scheduled inspection.

F. Measure the illumination at the work surface in the plane of the work.

3.35 SCHEDULE of WORK

Item	Surface Prep		Coating	
	Abrasive	Method	Material	Application
Exterior	2.02b or 2.02c Coal slag with Blastox or steel grit. Abrasive blast clean to SP6 with containment.	3.01/3.04	2.03 4 coat epoxy urethane.	3.08
Exterior Alternate		3.03/3.06	2.06 2 coat aluminum alkyd.	3.10
	High pressure water clean and spot power tool clean.			
Wet Interior	2.02a or 2.02c Coal slag or steel grit. Abrasive blast clean to SP10.	3.02/3.065	2.04 3 coat epoxy polyamide.	3.09
Pit Piping	2.02b or 2.02c Coal slag with Blastox or steel grit. Abrasive blast clean to SP6.	3.01/3.04/3.15	2.05 2 coat epoxy.	3.11/3.15

CATHODIC PROTECTION
SECTION 16000 – MILL LANE TANK

PART 1 - GENERAL

1.01 DESCRIPTION

A. SCOPE: Furnish and install a complete automatic controlled impressed current cathodic protection system to prevent corrosion on the submerged interior surfaces of the water storage tank. All work and material are to meet the standards established in AWWA D104-04-Automatically Controlled Impressed-Current Cathodic Protection for the Interior of Steel Water Tanks.

B. CONFLICTS: Requirements contained in these specifications apply to and govern the work under this section. All General Condition items and Information for Bidder items applicable or contained in these specifications apply. This Technical Specification is intended to expand the General Conditions and/or other Technical Specifications and is not intended to conflict or override any items unless specifically stated. If a conflict is noted, the engineer will review prior to proceeding with the project. If a conflict does exist, the Technical Specifications govern over any General Conditions or Information for Bidders.

1.02 QUALIFICATION of CATHODIC PROTECTION MANUFACTURER

A. The bidder is to have a minimum of five (5) continuous years of successful experience in the manufacture, installation and servicing of automatic cathodic protection systems for water storage tanks. The bidder is to have a permanent service organization located within three hundred (300) miles of the tank location. The contractor (manufacturer) is to have a minimum of twenty-five (25) successful units installed in water storage tanks. The manufacturer and/or his subcontractor must own and maintain or lease the equipment necessary for installation and have proper training in regard to the safety requirements.

B. New firms may also bid this project; however, they will be subjected to thorough review based on individual experiences of staff, proof of the continuation with firm (i.e. stock ownership, etc.) and financial stability of the firm. Essentially, they will be required to provide sufficient documentation to convince the owner they will be available throughout the ten (10) years to service the system, if needed.

1.03 SHOP DRAWINGS

A. Within three (3) weeks after the contract is awarded, furnish six (6) sets of shop drawings detailing the proposed installation for review. Submit detailed shop drawings for all items specified.

8. Submit three (3) sets of Operation/Maintenance Manuals directly to the owner.

1.04 GUARANTEE

A. Guarantee the cathodic protection system against all defects in materials and workmanship and further guarantee to prevent corrosion, when maintained in a continuous operation in accordance with the contractor's instructions, as evidenced by the absence of pitting (or additional pitting) below the high waterline in the tank for a period of one (1) year. The requirement of a maintenance contract may be beneficial, but cannot be made a precondition to this warranty. In the event corrosion is not prevented, the contractor is to readjust, repair, or replace the system. Guarantee the reference anodes for five (5) years. It is the intention of the owner to inspect the tank, as necessary, to review the performance of the cathodic protection system.

1.05 DESIGN and PERFORMANCE REQUIREMENTS

A. DESIGN CRITERIA:

1. The tank is a 5,000,000 gallon ground water storage tank. It is approximately 20 ft. to high water line; 206 ft.diameter.
2. The tank's interior will be coated with an epoxy system, and is 99.9% intact. Total bare surface area to be protected shall be 50% of the tank surface up to the high waterline. The tank is to have a three ring cathodic protection design with a separate circuit for each ring.
3. Design tank-to-water potential is to be -900 mv with units capable of adjustment from -850 mv to -1050 mv. The design potential is to be IR drop-free (type A) and based on a copper/copper sulfate reference anode.
4. Minimum current density is to be 0.5 MA/sq. ft. of the bare surface area.
5. The minimum design anode system life is to be ten (10) years.

B. The intent of these specifications is to procure a quality product by an established manufacturer of the latest design. Cost of the equipment is to include all royalty costs arising from patents and licenses associated with furnishing the specified equipment. Design all material to withstand the stresses created under ice conditions. Use the latest state-of-the-art "permanent" system which is designed to be ice-free and designed for use on tanks with ice conditions. Use corrosion resistant materials for all equipment, or protect with corrosion resistant industrial coating approved by the engineer.

PART 2 - PRODUCTS

2.01 CATHODIC PROTECTION SYSTEM

A. Provide a cathodic protection system (ice-free) which is to be a suspended or floating ring-type system. Furnish all items, as necessary, for the complete operating system.

2.02 MATERIALS

A. Furnish materials of the best quality, regularly used in commercial practice and conforming to the following specifications. Specifically design the cathodic

protection system for operation in icing conditions and protect against damage from ice.

B. Supply only materials for use inside the wet interior (i.e. all material in contact with water that meets NSF 61 Standards and bears the NSF or UL label verifying compliance).

C. Mount the power unit as directed in Part 3 - Execution in a stainless, waterproof cabinet suitable for outdoor use, adequately ventilated with stainless steel screens, and with provision for locking. Secure cabinet by using mounting brackets. If mounted on steel, electrically isolate from steel with non-conductive insulators.

D. Use an electrical insulating material having suitable thickness and mechanical strength for the mounting board. Mount accurate D.C. meters with a D.C. voltmeter on the panel board for indicating output of rectifier.

E. Include a potential indicating voltmeter on the panel board. This voltmeter is to be part of the sensing circuit, and is to continuously indicate the structure potential value which the control system is maintaining.

F. Panel Board is to contain the following equipment:

1. Power Unit: The power unit is to have the necessary circuit breakers, transformer, selenium or silicon rectifying elements, voltmeter(s), ammeter(s), lightning, surge, overload protection, wiring, and appurtenances of adequate capacity to meet the requirements established by the Engineering Survey for each corrosion problem. Provide a power unit with voltage adjustments to regulate the current required for corrosion control. The unit is to be adjustable over the entire range of 0-100% of rated capacity. Design the power unit for Single Phase, 60 Hz, 110-120 volt A.C. rated to operate at an ambient temperature of 45° Centigrade. Include a circuit breaker for the A.C. and an overload relay in the D.C. circuit. The entire power unit is to be fully field serviceable. The overall efficiency of the power unit is to exceed 65%, and the power factor is to exceed 90% of full load and rated voltage to the power unit, in the conversion of A.C. to D.C. The power factor is to be greater than 85% at outputs exceeding 25% of the rated capacity.
2. Automatic Controller: House the controller integrally with the rectifier unit The automatic controller is to be completely solid state design having no moving parts and capable of automatically maintaining the tank-to-water potential at (-)900 millivolts with respect to a copper-copper sulphate reference electrode within an accuracy of 25 millivolts. The tank-to-water potential measured and maintained by the controller is to be free of "IR" drop error (type A).
3. Rectifier: Use non-aging tri-amp selenium or silicon rectifiers of the approved selenium type, as manufactured by General Instrument Corporations or equal for rectifier stacks. The rectifier stacks are to have adequate cooling fins so their normal temperature rise at rated capacity will not exceed that specified by the N.E.M.A. and by the manufacturer of the rectifier stacks for cathodic protection service. Use air-cooled rectifier

stacks.

Design the transformer for use in cathodic protection rectifiers having separate primary and secondary copper windings. The rectifiers are to be capable of automatically adjusting output to maintain potential within +/- 25mv of -900mv, and to be adjustable over 0-100% of its rated capacity.

4. Tank-to-Water Potential Meter: Equip the controller with a calibrated potential monitoring and display circuit having an integral impedance exceeding 1000 megohms which is to be so connected to read, from the system reference cell, the tank-to-water potential being maintained by the cathodic protection system.

   This voltage reading is to be free of "IR" drop error.

   NOTE: If a digital readout is provided, provide access to all readings required above.

G. Run positive wires from the power unit to the anode circuits in rigid steel conduits, as established by the National Electrical Code for the allowable current-carrying capacity. Use rigid, galvanized steel conduit. Use State code for underground wire. Use HMWPE (High Moly) wire from the rectifier to and in the tank)

H. Equip the system with a copper-copper sulfate reference electrode designed for a minimum five (5) year life. Install two (2) electrodes on opposite sides of the bowl. If either electrode fails within five (5) years, replace as often as necessary, free of charge to the owner.

I. Design the anode system for a minimum life of ten (10) years and securely attach to the tank to prevent damage from ice conditions. Include all labor and material for installation of the anodes, and use submerged floating anodes. The anode system uses platinized niobium wire anodes with a minimum diameter of 0.062 in. w/25 micro in. of platinum for the system. Attach the anodes to a buoyant submerged structure which is maintained in a totally submerged condition, down to the minimum water level by flexible attachment to the interior tank walls or access tube. Anode and reference electrode lead wires are to enter the tank below the minimum water level through pressure tight fittings. Use 3,000 lb. couplings for fitting. Use a separate cord to encircle the supporting cord approximately 8 in. greater radius and design the cord to relieve tension in the loading. Use $^{5}/_{16}$ in. polyester or nylon rope.

J. Protect all units using lightning arresters, surge protectors, and automatic overload protection in all modes and comply with all FCC regulations. All patent requirements are the responsibility of the contractor.

2.03 ALARM and TELEMETRY CONTROLS

A. The alarm and telemetry circuits are to be a secondary system designed to read controls and not to interfere in any manner with the primary controls. Use four-to-twenty (4-20) milliamp sensors to read voltage, amperage and potential of both

circuits. One alarm light shall be furnished on the cover of the rectifier box. The light shall be activated by a change in amperage, voltage or potential which would signal a possible system failure.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The cathodic protection system is to be installed by full-time employees of the supplier of the system who are specifically trained to install and service water tank cathodic protection systems. Subcontractors who are specialized tank personnel may install the cathodic protection system under direct, on-site supervision by a responsible employee of the manufacturer.

B. Install clips, pressure fittings, mounting supports, and brackets prior to abrasive blasting.

C. Supply cathodic clips and coupling with location information.

3.02 WELDING

A. Complete welding of wall attachment clips by a certified welder and use **3** in. fillet welds all around. No area may be left which would be susceptible to crevice corrosion.

B. Weld the pressure fitting with **3** in. fillet continuous welds all around on both the tank=s wet interior and exterior.

C. Weld a control panel mounting bracket in-place per Drawing 16000-1 with **3** in. continuous fillet weld in the interior basebell, as designated by the owner and engineer. Construct with $^{3}/_{16}$ in. bent steel plate.

3.03 INSTRUCTIONS

A. After installation is complete, energize the system and adjust for optimum operations. After the unit is adjusted, take tank-to-water potential measurements using a copper-copper sulfate reference electrode. Submit a report to the engineer, including all the test results obtained.

B. After supervision of inspection and start-up operations, provide one (1) additional day for training of the owner and/or his representative. The training is to include minor troubleshooting practices, recordkeeping, and methods used to determine the effectiveness of the system. The training period is at the owner=s discretion within one (1) year of start-up.

3.04 MOUNTING PANEL

A. Locate metal, waterproof cabinet in the pump building ,or at the base of the tank at location approved by the owner. Mount on electrical panel

3.05 OPERATION of SYSTEM

A. The owner reserves the right to leave the cathodic protection system out-of-service for one (1) full year.

B. Complete item 3.03 - Instructions when scheduled by the owner (within thirteen [13] months).

C. Extend one (1) year warranty of cathodic protection system one (1) year beyond date of energizing.

SECTION 16500
ELECTRICAL – MILL LANE TANK

PART 1 – GENERAL

1.01 CODES
A. NEC – National Electric Code.

1.02 WORK INCLUDED
A. Remove existing lights and conduit from the tank.
B. Install three (3) light posts at the three large pits with light and wiring.

PART 2 - PRODUCTS

2.01 LIGHT POLES and FIXTURES
A. Poles to be Sterner Model SSS-10 aluminum poles, base style D, black.
B. Fixtures to be Exec-SQR19, 100 watt MH reflector-type, 5H, black, as manufactured by Sterner Lighting Systems, Inc., Winsted, MN 1-800-328-7480.

PART 3 – EXECUTION

3.01 REMOVE EXISTING LIGHTS
A. Remove the three (3) lights and conduit from the tank's sidewalls to the electrical panel. Grind all connections smooth. Cap all cut wires as required per local code.
B. Cost is incidental to exterior repainting.

3.02 INSTALL THREE (3) NEW LIGHTS and POSTS
A. Furnish and install a light with pole at each large pit, as directed by the engineer.
B. Run PVC conduit with wiring from the electrical panel to each pit.
C. Bury conduit a minimum of 18 in. below grade.
D. Poles to be mounted using ¾ in. anchor bolts attached to the concrete cover of each pit.
E. All electrical work to be performed by State Certified Electrician.
F. Payment is a separate line item "New Light Poles" which the owner reserves the right to delete.

FIELD INSPECTION REPORT

STANDPIPES & RESERVOIRS

TANK OWNER: Lynchburg, Virginia
LOCATION: Mill Lane Tank
TYPE OF TANK: Reservoir
MANUFACTURER:
YEAR OF ERECTION: Circa 1978
CAPACITY: 5,000,000 Gallons
LETTERING: None
LOGO: None

PROJECT NUMBER: 46-61-01-01

DATE OF INSPECTION: 03/23/04
HEIGHT TO H.W.L.: ±20'
CONSTRUCTION METHOD: Welded
TYPE OF ROOF: Slightly pitched flat roof
DIAMETER: 648 ft. circumference

SITE CONDITIONS: City owned property, fenced, slightly rural.

NEIGHBORHOOD: Residential/rural.

ACCESS: Off Mill Lane, paved drive.

POWER LINES: East of tank approximately 70ft.

OTHER PROBLEMS: Tank control building northwest of tank.

GENERAL INFORMATION ABOUT PREVIOUS PAINTING (IF AVAILABLE):

	INTERIOR	EXTERIOR
PAINT SYSTEM:	**Appeared to be epoxy**	**Lead primer/tinted Aluminum**

PART 1 - FOUNDATION CONDITIONS:

1. Indications of differential foundation settlement: **No**
2. Indications of underground pipe leaks: **No**
3. Is soil eroded so foundation may be undermined: **No**
4. Are base plates, anchor bolts, or anchor bolt chairs deteriorated: **No**
5. Are shrubs, trees, etc. encroaching the foundation: **No**
6. Is grout deteriorated: **Yes**
7. Is concrete spalled, cracked, or deteriorated: **Yes, minor cracking ±6 in. from edge of concrete**

PART 2 - VALVE PIT CONDITIONS:

1. Is valve pit in good structural repair: **Yes - 4**
2. Where are controls located: **Control building/pump house**
3. Does tank have cathodic protection: **Yes**
   Where are controls: **Mounted to tank exterior**

Condition of cathodic protection: **Old rectifier with bird's nest inside**
Design of cathodic protection: **Suspended wires from roof**
Manufacturer: **Goodall, Model #CTAYSA, Serial #7801766**

4. Does pit have an altitude valve: **No**
5. Is coating of piping and valves in good condition: **Fair**
   Is there any steel loss: **No**
6. Percent of coating remaining intact: **90%**
7. Is pit/dog house insulated: **No**

PART 3 - EXTERIOR CONDITIONS:

1. Sidewalls:
   a. General condition of topcoat: **Good** Mils: **3-5**
      Estimated percent intact: **99.9%**
   b. Estimated percent primer intact: **99.9%**
   c. Discussion of coating: **Mildew on sidewalls, also a few minor coating breaks.**

2. Roof:
   a. General condition of topcoat: **Poor** Mils: **4-6**
      Estimated percent intact: **80%**
   b. Estimated percent primer intact: **80%**
   c. Discussion of coating: **Topcoating is ablated with primer bleed through, also ablated primer to steel substrate.**

3. Additional Information:
   a. Is there an aluminum coat under topcoat: **Coat appears to be aluminum.**
      Any peculiar problems: **Electrical conduit with lights routing from west side to the north and to the east.**
      Recommendations: **Power wash, power tool clean with overcoat.**
   b. Results of adhesion tests, if recommended recoat: **4A**
   c. Were any paint samples taken for lead: **Yes**
      How many: **2** Locations: **1 on roof and 1 on sidewall**

PART 4 - INTERIOR CONDITIONS:

1. Floor: **Not accessible for inspection.**

2. Sidewalls: # Shells: **3** # Section of shell: **23**
   a. General condition of topcoat: **Fair** Mils: **7-11**
      Percent intact: **99%**
   b. Percent of primer intact: **99%**
   c. Condition of steel: **Good**
      Starter pits: **No**
   d. Discussion of coating: **Fair with extensive rust blooms.**

3. Roof:
   a. General condition of topcoat: **Fair to poor** Mils: **8-10**
      Percent intact: **98%**
   b. Percent primer intact: **98%**
   c. Condition of steel: **Good**
      Starter pits: **No**
   d. Discussion of coating: **Most failed areas consist of all lap seams and the adjacent 2" each side of lap seam.**

4. Is roof supported by columns: **Yes** How many: **22** Shape: **Round**
   a. Condition of topcoat: **Fair** Mils: **8-10**
      Percent intact: **98%**
   b. Percent primer intact: **98%**
   c. Discussion of coating: **Active corrosion below paint, rust is beginning to push paint.**

5. Is roof supported: **Yes**
   a. By beams: **Yes** How many: **210** Shape: **Channel**
   b. Condition of connections: **Fair**
   c. Welded or bolted: **Welded**
   d. Discussion of coating: **Channel support chairs welded to sidewall have pack rust.**

6. Condition of lap seams: **Fair**

Any peculiar problems: **Center column support plate should be replaced so it allows better airflow.**

Recommendations: **Abrasive blast clean, repair or replace beam chairs as necessary, recoat with a zinc epoxy system.**

Results of adhesion tests, if recommended recoat: **4A**

Were any paint samples taken for lead: **Yes**

PART 5 - CONDITION OF ACCESSORIES:

1. a. Wet interior ladder: Condition: **Poor**
   DIMENSIONS: 1. Toe clearance: **6 ½"**
   2. Width of rungs: **15 ½"**
   3. Thickness of rungs: **7/8"**
   4. Shape of rungs: **Round**
   5. Length of longest unsupported section: **Not accessible, water level top high.**

6. Pitch: **90°**

b. Sidewall ladder: Condition: **Good.**
DIMENSIONS: 1. Width of rungs: **15 ½"**
2. Thickness of rungs: **7/8"**
3. Shape of rungs: **Round.**
4. Length of longest unsupported section: **8'**
5. Pitch: **90°**

c. Any ladders caged: **No**

d. Any fall prevention devices: **Yes**
Design: **Rail type both on exterior sidewall ladder and on wet interior ladder.**

2. Sidewall hatches: **2** Size: **24"** Hinged: **Yes**
Gasket leaking: **No**

3. Roof hatches: **1** Size: **30" x 30"** Hinged: **Yes**
Percent coating intact: **80%**

4. Does tank have inside spider: **No**

5. Does tank have radial or vertical roof and sidewall stiffeners: **No**

6. Stiffener rings: **No**

7. Fill pipe size: **N/A**

8. Is there a separate draw line: **Yes**

9. Roof vents: **5**
Type: **Mushroom** Size: **12"** Screened: **Yes, with 1/8" wire mesh**
Condition: **Fair**
Is there a vacuum vent: **No**
Is there a painter-s ventilation hatch: **No**

10. Is overflow pipe in good condition: **Yes** Size: **12"**
Screened: **No.** Discharges to: **Underground storm drain**
Is there an air break: **No**

11. Does tank have drain line with valve: **Yes**
Size: **12"** Condition: **Good**

12. Number of cathodic caps: **258** Missing any: **No**
Out-of-alignment: **Yes.** Condition of caps: **Good**
Condition of openings: **Good**

13. Does tank have external balcony/step off platform: **No**

14. Priority repairs: **Repair or replace cathodic protection system, replace or realign cathodic caps, replace or rescreen vents, complete exterior overcoat, abrasive blast clean and paint interior, remove lighting conduit from sidewall, use alternate conduit routing, relocate or remove sidewall ladder to side of wet interior roof hatch.**

15. Long-term maintenance and general comments: **Reinspect in 5 years.**

TECHNICIANS: Thomas Rounds, Chris Kreiner, Larry Houck

DATE: 03-23-04

The Field Inspection Report is prepared from the contractor's viewpoint. It contains most of the information the contractor needs to prepare his bid for any repairs or repainting. The Engineer uses it to prepare the engineering report. Cost estimates are more accurate if contractor problems can be anticipated. While prepared from the contractor's viewpoint, the only intended beneficiary is the owner. These reports are completed with diligence, but the accuracy is not guaranteed. The contractor is still advised to visit the site.

SECTION 01010
PROJECT EXPLANATION/WORK SUMMARY – COAGULATION TANKS

Nothing stated in this Project Explanation/Work Summary shall influence or override any of the conditions in the Instruction to Bidders, General Conditions, or Technical Specifications. It is included as a service to Bidders for explanation only.

The Contractor shall abide by the following schedule

Commence work on Coagulation Tank #2 (4,000,000 gallons) after February 15, 2005.

Substantial Completion of Coagulation Tank #2 is May 27, 2005.

Commence work on Coagulation Tank #1 (1,700,000 gallons) after Coagulation Tank #2 is returned to service.

Substantial Completion of Coagulation Tank #1 is July 15, 2005.

Milestones: None

Ready for Final Payment: Entire project – August 31, 2005.

The work includes:

Paint:
Exterior Tanks 1 and 2: Includes all interior down to the high water line. Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a four (4) coat zinc epoxy urethane system.

Exterior Effluent Piping, Trusses, Walkways and Framing: Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a four (4) coat zinc epoxy urethane system.

Wet Interior: Abrasive blast clean to a SSPC-SP10 near white standard, and apply a three (3) coat epoxy with zinc primer.

Galvanized Grating: Abrasive blast clean to a SSPC-SP10 near white standard, and hot dip galvanize.

Pit Piping: There are two (2) pits with piping. Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a two (2) coat epoxy system.

Repairs:

Tank #1:

- Repair grout under annular plates.
- Install 30 in. sidewall manway.
- Replace sections of weir.
- Remove cathodic system.
- Replace manway gasket.

Tank #2:

- Repair grout under annular plates.
- Install 30 in. sidewall manway.
- Replace grate clips.
- Repair leaking seal on effluent piping in the pit.
- Replace sections of weir.
- Remove cathodic system.
- Replace manway gasket.

Effluent Piping:

- Replace grate clips.
- Remove and replace fence and clamps.

Note 1: There are no Milestones on this portion. Return of Tank #2 (4,000,000 gallons) to service is critical. These are two (2), separate Substantial Completion dates. Liquidated Damages apply at $1,000 per day after Substantial Completion Date and $300 per day after Ready for Final Payment Date. If Substantial Completion is not achieved by Ready for Final Payment date, the $1,000 per day Liquidated Damages continues. Delay in Substantial Completion Date, either through fault of Contractor or by approved Change Order does not change Ready for Final Payment Date, unless specifically negotiated in a Change Order.

Note 2: Contractor to protect all sensitive equipment during all water cleaning, blasting, and painting. All mixers, all drives, all motors, and all electrical are in good working order. Contractor is 100% responsible for protection of these items and all moving parts. Any repair shall be completed by Owner approved Subcontractor at the Contractor's expense.

Note 3: Both coagulation tanks have sloped concrete floors. Protect building from all pressure cleaning, containment design, blasting, or painting damage. Any damage will be repaired per Owner's instructions and to their satisfaction. Certain types of damage may require improvements (i.e. repair of paint on aluminum or concrete fascia) will result in one clean area against background of a weathered building. Repair area will require a uniform appearance.

Note 4: Expose all foundations down 6in. and back 2 ft. Refill as needed to maintain slope with 2 in. white decorative stone, leaving at least 1 in. of foundation exposed.

Note 5: Scaffold around effluent piping requires many design considerations to allow minimal but essential access to some repair trucks, to keep air conditioners open and clean, to protect building, and other issues to be discussed at Prebid Meeting. Jersey walls to protect scaffold required. Some fence removal and replace are necessary.

Note 6: Effluent piping cannot be valved off. Method of bagging and sealing piping while other tank is in-service is needed.

Note 7: Clean tanks washing down all floors and deposits. Pump all waste to sanitary sewer. Cost is incidental to both tanks.

Note 8: Treat all coatings as lead based.

Note 9: Limits of Work: Effluent piping painting is a separate line item. For the purpose of Substantial Completion that portion of the piping (trusses, etc.) from the building to Tank #1, and that piping along the building to the edge of the building toward Tank #2 is part of Work for Tank #1. Piping from the building edge to Tank #2 is part of Work for Tank #2.

There is flexibility in this separation of Limits of Work, but no dust generating or painting work may be completed within 30 ft. of the open tank top when it has been returned to service.

Note 10: Owner will relocate rain gauge from tank-to-tank when notified of completion of Tank #2.

Note 11: Access to top of tank in-service must be maintained for plant operation. Access a few times a day is necessary. Access can be along walkway, Contractor supplied lift, or ladder with all safety compliance items.

SECTION 01500
TEMPORARY CONSTRUCTION FACILITIES and UTILITIES – COAGULATION TANKS

PART 1 GENERAL

1.01 SUMMARY
A. Provide and maintain temporary facilities and utilities required for construction; remove on completion of work.

1.02 QUALITY ASSURANCE
A. Regulatory Requirements:
   1. National Fire Protection Association (NFPA):NFPA No. 70-93.
   2. National Electrical Code (NEC) and local amendments thereto.
   3. Comply with federal, state, and local codes and regulations, and utility company requirements.

PART 2 PRODUCTS

2.01 TEMPORARY ELECTRICITY and LIGHTING
A. Supply temporary lighting sufficient to enable contractor to safely access all work areas.
B. Electrical requirements in excess of capacity of existing electrical service shall be responsibility of contractor.
C. Provide, maintain, and remove temporary electric service facilities.
D. Facilities exposed to weather shall be weatherproof-type and electrical equipment enclosure locked to prevent access by unauthorized personnel.
E. Pay for installation of temporary services.
F. Patch affected surfaces and structures after temporary services have been removed.
G. Provide explosion proof lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and small power tools.

2.02 WATER for CONSTRUCTION
A. Owner will provide water required for cleaning and other purposes.
B. Water use shall not exceed usage that might endanger the owner's water system's integrity.

2.03 SANITARY FACILITIES
A. Provide temporary sanitary toilet facilities conforming to state and local health and sanitation regulations, in sufficient number for use by contractor's employees.
B. Maintain in sanitary condition and properly supply with toilet paper.
C. Remove from site before final acceptance of work.

2.04 TEMPORARY FIRE PROTECTION

A. Provide and maintain in working order a minimum of two fire extinguishers and such other fire protective equipment and devices as would be reasonably effective in extinguishing fires.

2.05 DAMAGE to EXISTING PROPERTY

A. Contractor is responsible for replacing or repairing damage to existing buildings, sidewalks, roads, parking lot surfacing, and other existing assets.

B. Owner has the option of contracting for such work and having cost deducted from contract amount if the contractor is not qualified, or fails to act in a timely manner.

2.06 SECURITY

A. Security is not provided by owner.

B. Contractor shall be responsible for loss or injury to persons or property where work is involved, and shall provide security and take precautionary measures to protect contractor's and owner's interests.

2.07 TEMPORARY PARKING

A. Owner will provide designated parking and storage areas, but not security.

2.08 ENGINEER'S FIELD OFFICE

A. Before commencement of any work on the Coagulation Tanks or the Mill Lane Tank, provide heated, weatherproofed trailer office for exclusive use of the Engineer.

B. Locate office as directed by the Engineer. There are separate trailer requirements for each location. Locate this trailer at the Coagulation project site.

C. Provide electric or propane heat, electric air conditioning, and screened and locking windows during the duration of this Contract.

D. Anchor for stability in high winds.

E. This office shall be a minimum of 10 ft. x 20 ft. in-place; one (1) door; two (2) single windows and a double window shall be provided. Equip the door with a cylinder lock. The office shall be equipped using acceptable second-hand or on-site constructed furniture as follows:

1. One (1) desk with drawers.
2. Two (2) desk chairs.
3. Four (4) electric convenience outlets.
4. Two (2) wastebaskets.
5. One (1) smoke alarm.
6. Two (2) 10 lb. fire extinguishers for Class "ABC" fires.
7. Four (4) 6 ft. x 1 ft. metal lockers with locking capabilities.
8. One (1) 3 ft. x 4 ft. x 3 ft. high locking chest locker.

F. Arrange, furnish, and provide service during Contract times (until all punch list items completed):

1. One (1) internet connection and service.
2. One (1) integral plain paper facsimile machine, copies, and printer.

G. Provide three (3) parking spaces close to Engineer's office, reserved for Engineer and Owner.

H. Engineer will provide cleaning services. Contractor will accommodate all waste generated.

PART 3 EXECUTION

3.01 GENERAL

A. Maintain and operate systems to ensure continuous service.

B. Modify and extend systems as work progress requires.

3.02 REMOVAL

A. Completely remove temporary materials and equipment when no longer required.

B. Clean and repair damage caused by temporary installation or use of temporary facilities.

C. Restore existing or permanent facilities used for temporary services to specified or original condition.

3.03 BARRIERS, ENCLOSURES and ACCESS

A. The contractor shall furnish, install, and maintain as long as necessary, and remove when no longer required adequate barriers, warning signs or lights at all dangerous points throughout the work for protection of property, workers, and the public. The contractor shall hold the owner harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the work under the contract.

B. Contractor shall furnish and install jersey walls around all scaffolding in driveways or parking lots remaining open, and in drives and lots closed but open to limited access.

C. Provide flagman (guide) for repair trucks during temporary access. This worker must be strictly dedicated to safety of ground workers and workers on scaffolding while Owner's or Owner's suppliers are inside what normally is a secure area (Tank #1 to building).

SECTION 01560
PROTECTION of ENVIRONMENT – COAGULATION TANKS

PART 1 GENERAL

1.01 SUMMARY

A. Contractor in executing work shall maintain work areas on-and-off-site free from environmental pollution that would be in violation of federal, state, or local regulations.

1.02 PROTECTION of SEWERS

A. Take adequate measures to prevent impairment of operation of existing sewer system. Prevent construction material, pavement, concrete, earth, or other debris from entering sewer or sewer structure.

1.03 PROTECTION of WATERWAYS

A. Observe rules and regulations of local and state agencies, and agencies of U.S. government prohibiting pollution of any lake, stream, river, or wetland by dumping of refuse, rubbish, dredge material, or debris therein.

B. Provide containment which will divert flows, including storm flows and flows created by construction activity, to prevent loss of residues and excessive silting of waterways or flooding damage to property.

C. Comply with procedures outlined the Virginia Soil and Erosion Handbook.

1.04 DISPOSAL of EXCESS EXCAVATED and OTHER WASTE MATERIALS

A. Dispose waste material in accordance with federal, and state codes, and local zoning ordinances.

B. Unacceptable disposal sites include, but are not limited to, sites within wetland or critical habitat, and sites where disposal will have detrimental affect on surface water or groundwater quality.

C. Make arrangements for disposal subject to submission of proof to engineer that owner(s) of proposed site(s) has valid fill permit issued by appropriate government agency and submission of haul route plan including map of proposed route(s).

D. Provide watertight conveyance for liquid, semi-liquid, or saturated solids which tend to bleed during transport. Liquid loss from transported materials not permitted, whether being delivered to construction site or hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at selected disposal site.

E. Waste generated by abrasive blast cleaning is detailed in Section 09870.

1.05 PROTECTION of AIR QUALITY

A. Contain paint aerosols and V.O.C.'s by acceptable work practices.

B. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment used by contractor, and encouraging shutdown of motorized equipment not actually in use.
C. Trash burning not permitted on construction site.
D. If temporary heating devices are necessary for protection of work, they shall not cause air pollution.

1.06 PROTECTION from FUEL and SOLVENTS

A. Protect the ground from spills of fuel, oils, petroleum distillates, or solvents by use of containment systems.
B. Supply containment system for fuel on stationary equipment or stationary fuel tanks.
C. Drip pans or other acceptable means shall be employed to prevent oil and other lubricants or coating fluids from spilling or depositing on the ground.
D. Disposal of waste fluids shall be in conformance with federal, state, and local laws and regulations.

1.07 USE of CHEMICALS

A. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification must show approval of U.S. EPA, U.S. Department of Agriculture, state, or other applicable regulatory agency.
B. Use of such chemicals and disposal of residues shall be in conformance with manufacturer's written instructions and applicable regulatory requirements.

1.08 NOISE CONTROL

A. Conduct operations to cause least annoyance to residents in vicinity of work, and comply with applicable local ordinances.
B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
D. Keep noise generating activities below the City’s noise ordinance level.

PART 2 PRODUCTS

(Not Applicable)

PART 3 EXECUTION

3.01 HAZARDOUS MATERIALS PROJECT PROCEDURES

A. Applicable Regulations:
   1. RCRA, 1976 - Resource Conservation and Recovery Act:
      This federal statute regulates generation, transportation, treatment, storage and disposal of hazardous wastes nationally.

B. To use an off-site hazardous waste disposal facility, the contractor must use the Uniform Hazardous Waste Manifest (shipping paper).

C. Federal, State and local laws and regulations may apply to the storage, handling and disposal of hazardous materials and wastes.

SECTION 05000
METALS - COAGULATION TANKS

PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Steel Repair.
B. Surface Preparation of Lead Paint Before Welding.

1.02 REFERENCES
A. AWWA D100 Weld Standard
B. AWS Weld Standard
C. API 650 Standard

1.03 OMISSIONS
A. The specifications include all work and materials necessary for completion of the work. Any incidental item(s) of material, labor, or detail(s) required for the proper execution and completion of the work are included.

1.04 DEFINITIONS
A. Ground Flush: Ground even with adjacent metal, no transition.
B. Ground Smooth: Ground welds to the point that no cuts or scratches occur when rubbing your hand over the weld. Rebuild with weld any concavity discovered during the grinding.
C. Coagulation Tank #1: 1,700,000 gallon tank, includes all internal components.
D. Coagulation Tank #2: 4,000,000 gallon tank, includes all internal components.
E. Effluent Piping: Includes all piping; walkways; truss supports above or outside the tank, whether purpose is effluent piping or not; all exterior appurtenances not normally associated with tanks.

1.05 WORK INCLUDED
A. Tank 1:
   1. Repair grout under annular plates.
   2. Install 30 in. sidewall manway.
   3. Remove cathodic system.
   4. Replace manway gasket.
B. Tank 2:
   1. Repair grout under annular plates.
   2. Install 30 in. sidewall manway.
   3. Replace grate clips.
   4. Repair leaking seal on effluent piping in the pit.
   5. Replace weirs.
   6. Remove cathodic system.
   7. Replace manway gasket.

C. Effluent Piping:
   1. Replace walkway grate clips.
   2. Remove and replace walkway fence and clamps.

1.06 WORKMANSHIP

A. Provide material and workmanship necessary to produce a first class job.
B. Complete work in a manner which is least offensive to neighbors.

1.07 WELDER QUALIFICATIONS

A. Certified for type and position of weld specified.
B. The welder shall be specialized in industrial or heavy commercial welding, and experienced in rigging and elevated work.

1.08 SUBMITTALS

A. Material Safety Data Sheets (MSDS) - For all items as required by law.
B. Welder=s Certification.
C. Submit materials at least one week prior to preconstruction meeting.

1.09 FLORULATOR and SCRAPER DRIVE MECHANISM and PROTECTION of ELECTRICAL CONTROL PIPING MOTORS, PIPING and GEAR SEALS

A. Protect all sensitive motors, drives, seals, etc. with shrink-wrap, rubber, etc. Maintain protection against damage, dust, and water throughout the project.
B. Any damage (all items are currently working) will be repaired at the Contractor's expense by mandatory Subcontractors of Owner approved vendor.

PART 2 - PRODUCTS

2.01 STEEL PLATING and OTHER STRUCTURAL SHAPES

A. ASTM - A36

2.02 BOLTS

A. ASTM F593NB – 304 Stainless Steel Bolts.
B. ASTM F594CW – Stainless Steel Nuts.

2.03 WELDS

A. Final - E70XX Electrodes
B. Root - E60XX Electrodes
C. Wire - ER70S-X Electrode

2.04 GROUT REPAIR

A. The standard to fill holes is an epoxy grout Sika 212 Grout as manufactured by Sika.

2.05 FALL PREVENTION DEVICE

A. Rail-Type/North Saf-T-Hatch, Brea, CA.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION - PREWELDING - LEAD PAINT

A. The existing coating is known to contain lead.

B. Remove all coating by abrasive blast cleaning prior to any cutting, welding, or disturbance of the lead paint.

C. Remove all coating for 6 in. on both sides of the area to be welded by vacuum shrouded power tool or abrasive blasting. Chemical stripping or other method may be approved by the engineer.

D. Absolutely do not begin any repair work until all adjacent lead is properly removed, cleaned, and stored.

3.02 GROUT REPAIR – TANKS 1 and 2

A. Remove wood chips from the foundation to expose the grout and dirt on all non-paved sides down 6 in. below the top of the foundation and out 2 ft. Remove all loose, soft, or mottled grout from the baseplates and tops of the foundations. Removal of grout shall be by hammer and chisel, high pressure water, or power tools. The area to be repaired consists of spots on Coagulation Tank #1 and the entire circumference of Tank #2.

B. Remove all concrete cap-overs and covers that extend over the baseplate so grout can be inspected and repaired.

C. It appears that at one time an attempt was made to inject the underside of Tank #2 with tar. This tar requires removal by solvent cleaning from the steel before painting, but also from the concrete for grout replacement.

D. Pressure wash the grout using a minimum nozzle tip pressure of 2,000 psi. All surfaces shall be free of all standing water or frost in accordance with the manufacturer's recommendations. Surface to be Saturated Surface Dry (SSD).

E. Properly and thoroughly mix the grout in accordance with the manufacturer's recommendations as a dry mix.

F. Force the grouting material into the annular space to ensure there are no voids. Make flush with the baseplate. Approved backer material may be used for depths greater than 3 in.

G. Payment is a separate line item "Grout Repair." The owner reserves the right to delete this item.

3.03 REPLACE EXISTING SIDEWALL MANWAY GASKETS – TANKS 1 and 2

A. Replace the riser manhole gasket material with new **d** in. flat neoprene gasket material.

B. Payment is incidental to interior repainting.

3.04 MANWAYS – TANKS 1 and 2

A. Install a 30 in. diameter manway in the tanks' sidewalls (1 each tank).
B. Install API reinforcement ring.
C. Remove all slag, spatter, and rough welds by grinding smooth.
D. Install new **d** in. flat neoprene gasket material.
E. Payment is a separate line item "Manways" which the owner has the right to delete.
F. See Drawings 02a – 02b.
G. Note: The interior concrete sloped floors will require manways to be higher than average. Provide safe access from a platform to manways for workers.

3.05 REMOVE CATHODIC SYSTEM

A Remove all existing cathodic caps and bolts and other paraphernalia (including probes) from the tank.
A. Cut and remove from the tank all wiring, conduits, brackets, pulleys, and associated paraphernalia for the existing cathodic protection system. This includes the control panel.
B. Cap and plug remaining conduits and wiring per local, state, and federal electrical codes and regulations, whichever takes precedence.
C. The control box and system are to be removed, but shall remain property of the owner.
D. Grind smooth all unused brackets.
F. Cost is incidental to interior repainting.

3.06 INSTALL CLIPS for NEW CATHODIC PROTECTION SYSTEM

A. Install all clips for new cathodic protection system as directed by Corrpro.
B. Weld all around each clip.
C. Payment is incidental to cathodic protection installation.

3.07 REPLACE WEIR SECTIONS – TANK 2

A. Prior to abrasive blast cleaning, remove all weir sections..
B. Removed sections to become property of the contractor for disposal.
C. After completion of painting, install new weirs to level and proper elevation as directed by Owner.
D. Payment is a separate line item "Weir Replacement" which the Owner reserves the right to eliminate.

Note: 3.08 and 3.09 refer to grating, fencing over effluent piping and Coagulation Tanks 1 and 2.

3.08 GRATING CLIPS – TANKS 1 and 2

A. Remove all galvanized grating and regalvanize per Section 09870.
B. Reinstall grates with new stainless steel clips and screws. Clips to match existing style – engineer to field verify.
C. Cost is incidental to grate galvanizing.

3.09 REPAIR FENCE CLAMPS

A. Remove all chain link fence from pipe support walkways prior to abrasive blast cleaning.

B. After painting has been completed, install new vinyl coated chain link fence along all railings that have exposed sides (i.e. not on side of walkway against building). This includes walkways over the basins, even if there is no fence presently attached. (Color of fence is dark blue.)

C. Use vinyl coated clamps or galvanized clamps for attachments.

D. Payment is incidental to effluent pipe painting.

3.10 REPAIR EFFLUENT PIPE SEAL – BOTH TANKS

A. This pipe feeds into the pit and is leaking at the joint. This is not the elevated piping.

B. The joint is believed to be leaded.

C. The interior floor is covered with concrete.

D. This repair will be finalized by Addendum or Change Order, but the Bid Price will be based on the following repair methodology:

1. Remove concrete 3 ft. x 3 ft. x up to 3 ft. deep around pipe.
2. Remove pipe and joint and top 18 in. of pipe in pit (to a point where welding can be done).
3. Weld a steel reinforcement plate to new Schedule 40 pipe the same diameter as existing. Reinforcement plate welded top and bottom all around to new pipe. Plate to be 2 in. larger in radius than opening cut in floor, and ¼ in. thick. Fillet weld plate to floor topside after aligning pipe. Butt weld pipe, full penetration, to pipe in pit. Height of pipe above floor to match existing.
4. Drill eight (8) #4 rebar, 9 in. long, into edge of concrete 3 in., and epoxy glue in-place. Replace concrete vibrating as necessary and screed to old elevation.

E. Payment is a separate line item “Pipe Seals” which the Owner reserves the right to delete.

3.11 WEIR PLATE REPLACEMENT

A. Remove the existing V-notch weirs from the tanks.

B. Furnish and install new 90° V-notch stainless steel weirs.

C. Weirs to be $^{3}/_{16}$ in. plate, match removed weirs.

D. Attach using stainless steel bolts.

E. Level all weirs and place at elevation directed by Owner.

F. Payment is a separate line item “Weir Replacement” which the Owner reserves the right to delete.

SECTION 09870
PAINT WORK - COAGULATION TANKS

PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Full Field Abrasive Blasting.
B. Lead Paint Removal.
C. Containment.
D. Painting.
E. Interior Cleaning and Disinfection.

1.02 REFERENCES
A. AWWA Standards
   1. D102 - 97 Painting Steel Water Storage Tanks.
   2. C652 - Disinfection of Water Storage Facilities.
B. SSPC and NACE Standards
   1. PA1 - Paint Application.
   2. PA2 - Measurements and Calibration.
   3. NACE Weld Standard.
   4. SP6 - Commercial Abrasive Blast.
   5. SP10 - Near White Abrasive Blast.
   6. SSPC Guide 6 - Containment.
   7. VIS 1 (Visual standard for abrasive blasted metal).
C. AWS Weld Standards
D. ASTM Standards
   1. A123 – Specifications for zinc (Hot Dip Galvanized) coatings on iron and steel products.

1.03 DEFINITIONS
A. Coagulation Tank #1: 1,700,000 gallon tank, includes all internal components.
B. Coagulation Tank #2: 4,000,000 gallon tank, includes all internal components.
C. Effluent Piping: Includes all piping; walkways; truss supports above or outside the tank, whether purpose is effluent piping or not; all exterior appurtenances not normally associated with tanks.

1.04 WORK INCLUDED
A. Exterior – Tanks 1 and 2: Includes all interior down to the high water line. Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a four (4) coat epoxy urethane system.
B. Exterior Effluent Piping, Trusses and Walkways: Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a four (4) coat epoxy urethane system.

C. Wet Interior: Abrasive blast clean to a SSPC-SP10 near white standard, and apply a three (3) coat epoxy with zinc primer.

D. Wet Interior Floors: Abrasive blast clean to paint per interior coating specifications.

E. Galvanized Grating: Abrasive blast clean to a SSPC-SP10 near white standard, and hot dip galvanize.

F. Pit Piping: There are two (2) pits with piping. Abrasive blast clean to a SSPC-SP6 commercial standard, and apply a two (2) coat epoxy system.

1.05 INCIDENTAL WORK

A. The work in this section is not intended to be an all inclusive list, but more for clarification.

B. Remove all fencing and clips from tanks and walkway before painting. This includes ground level fences that create an unsafe work condition, interferes with cleaning or painting, or interferes with containment. Replace ground level fences upon completion. Replace all fences above the tanks or on walkways with new fencing per specifications.

C. Remove all grating and clips, and provide temporary walkways. Create an identification scheme so each section is returned to original location. Punch permanent identification numbers into grating, and supply Owner with electronic media map of layout.

1. Remove all aluminum grating and store in location directed by Owner. Clean and reinstall upon completion.
2. Remove all galvanized grating, abrasive blast clean, and redip per specifications. Store and reinstall upon completion.
3. All painted grating could be left in-place during painting, and then removed and painted per these specifications (4 coat epoxy urethane). Painted grating subject to holiday testing. Store and reinstall upon completion.

D. All vertical walls of tank, top angle, and inside of overflow trough (Tank #1) are considered interior surfaces.

E. Walkways, bridgework, and non-water contact surfaces are considered exterior surfaces. The bottom sides of walkway beams over the tanks are considered interior. To avoid conflicts of paint systems, use the following sequence:

1. Abrasive blast clean and prime beams.
2. Apply epoxy coat.
3. Apply second epoxy coat to underside.
4. Apply first and second coat urethanes to top and sides.

F. Wash down all sludge into bottom of tank and pump into sanitary sewer.

G. Effluent piping cannot be valved off. Follow special pipe seal and painting directions. Alternative methods require approval of Engineer.

H. Paint all conduits. Do not blast PVC or aluminum conduits. Brush-Off blast (SP7) small steel conduits over tank. Blast larger pipe size conduits. The truss work under the walkways will require extensive hand work.

I. Protect building from paint, abrasive blast cleaning, and wash water.
J. Cut and remove, and grind flush three (3) tabs on lower sidewall of Coagulation Tank #2.
K. Abrasive blast clean where possible, or power tool clean and paint light supports per exterior specifications.
L. Blast and paint steel railings. Remove and store aluminum railings.
M. Install Bird X on all perchable spots over the tanks.

1.06 EXISTING CONDITIONS

A1. Exterior – Tank 1: Aluminum applied in 1977 by Louis Guill Painting. Tested for lead at 20% by weight.
A2. Exterior – Tank 2: Aluminum applied in 1979 – 1981 by Louis Guill Painting. Tested for lead at 12% by weight.
B1. Wet Interior – Tank 1: Epoxy system applied in 1977 by Louis Guill Painting. Lead free coating by testing, but treat as lead based coating.
B2. Wet Interior – Tank 2: Epoxy system applied in 1979 – 1981 by Louis Guill Painting. Tested for lead at 5.8% by weight.
C. Effluent Piping: Tested for lead at 0.82% by weight, and chrome at 1.4% by weight. Treat as lead based coating.
D1. Concrete Floors are not painted – Tank #1.
D2. Concrete floors are not painted – Tank #2.
Note: It is believed the tanks' interiors are lead free, but the walkways, etc. are lead based. TREAT ALL WORK AS LEAD BASED.

1.07 PAINTER QUALIFICATIONS

A. Contractor shall complete all coating and surface preparation.
B. Painter shall be specialized in industrial or heavy commercial painting, and experienced in removing lead based coatings.
C. ALL CONTRACTORS SHALL BE QUALIFIED through Instruction to Bidders, or have successfully completed the SSPC QP2 Contractor QUALIFICATION Program for lead removal projects.
D. Submit five (5) successful paint projects of similar nature with the bid proposal.

1.08 SUBMITTALS

A. Submit the following with your annual prequalification:
    1. Occupational Safety and Health Programs and certification that all site personnel have been trained as required by law.
B. Submit the following ten (10) days prior to preconstruction meeting:
    1. Material Safety Data Sheets (MSDS).
        a. Furnish from all suppliers Material Safety Data Sheets for all applicable materials including, but not limited to, paints, thinners, and abrasive materials.
        b. Provide for employees one copy of all data sheets at the job site for employee access.

c. Provide one copy to the owner. No work may commence without the complete filing.
d. All sheets shall conform to requirements of SARA Right-to-Know Act.

2. Containment Design Plan.
3. Ventilation Design Plan. Include airflow calculations, model, and number of fans are to be listed.
4. Dehumidification/Heat Design Plan. Include airflow calculations, model, number of units used, connection details, and power source.
5. Lead Health & Safety Plan (LH&SP).
6. Site Specific LH&SP including:
   a. Work procedure for each job classification.
   b. Administration and engineering controls to be used during exposure assessment period and expected exposure.
   c. Personal hygiene procedure.
   d. Site personnel register (updated as needed).
   e. Qualifications of competent persons and responsibilities. At this point, multiple qualified people may be submitted.
   f. 24 hour job site contact person.
   g. Site map showing ingress/egress and locate all equipment.
7. Fall Prevention Plan and Site Specific Fall Hazard Evaluation:
   a. Site specific plan to contain a generic drawing of the existing structure and appurtenances of this tank and reflect safety changes specified for this project.
   b. Sketch and list procedures for rescue procedure for an exterior and a wet interior rescue.
   c. Certifications for all spiders, scaffolding, stages, etc. to be used on the project. All certifications to be current, less than one year old.
   d. Provide safety apparatus for rescue personnel and retrieval equipment.

C. Submit the following within two (2) weeks after preconstruction meeting:
1. Designated OSHA Competent Person and qualifications, if not previously submitted.
2. Waste hauler and disposal facility.
3. Copy to owner of OSHA Lead Standard for Construction.
4. Submit manufacturer's invoice, with or without paint cost, to the engineer for review. Submittal will be used to identify the quantity of paint recommended by the manufacturer for a project of this size and design, and will be used to check the quantity actually delivered to the project. Note: Scheduling of the preconstruction meeting may not allow the time frame for B and C above. All items in B are to be submitted as directed by the engineer, or the preconstruction meeting may be delayed. Submit all items in C prior to start of construction, or within two (2) weeks after the meeting, whichever is sooner.

5. Submit all power tools and attachments to be used during the project.

D. Submit the following within two (2) weeks of completion with final pay request:
   1. Waste manifest.
   2. Waivers of lien.
   3. Copies of any formal worker safety or environmental citations received on the project.

1.09 OWNER'S RESPONSIBILITY

A. Drain the tank with seven (7) days notice, after contractor meets all precedent conditions of this contract.

1.10 DELIVERY and STORAGE of MATERIAL

A. Submit manufacturer's invoice, with or without paint cost, to the engineer for review. The submittal will be used to identify the quantity of paint recommended by the manufacturer for a job of this size and design, and will be used to check the quantity actually delivered to the project.

B. Cover bulk materials subject to deterioration because of dampness, weather, or contamination, and protect while in storage.

C. Maintain materials in original, sealed containers, unopened, and with labels plainly indicating manufacturer's name, brand, type, grade of material, and batch numbers.

D. Remove from the work site containers that are broken, opened, water marked, and/or contain caked, lumpy, or otherwise damaged materials. They are unacceptable.

E. Store the material in a climate controlled designated area where the temperature will not exceed the manufacturer's storage recommendations. Heat the storage area to the manufacturer’s recommended minimum mixing temperature.

F. Keep equipment stored outdoors from contact with the ground, away from areas subject to flooding, and covered with weatherproof plastic sheeting or tarpaulins.

G. Store all painting materials in a location outside the tank.

H. Do not store or have on-site unapproved material, material from different manufacturers, or materials for different projects.

1.11 ACCESS and INSPECTOR SAFETY

A. Provide access to all portions of the project where work is being completed. Access must be close enough and secure enough to allow inspector to use inspection equipment without extensions.

B. Provide personnel to assist with access and to ensure contractor’s access equipment is safely used.

C. Provide separate fall protection for owner and inspectors. Limit fall to 5 ft. vertically.

D. These specifications require the contractor to supply a separate fall protection cable and grab for each tie-off point for the inspector’s use. The contractor is encouraged to provide a separate cable and tie-off for each of his personnel. The

cables may be connected to the same tie-off point as the inspector's, but a separate cable and grab are required for each user. These tie-off points include new interior grabs, new bowl grabs, grabs for exterior sidewall, for outside exterior leg columns, and for the riser. Attach riser grabs to safety grate.

1.12 INSPECTION and TESTING

A. Prior to the scheduled inspection, remove all dust, spent abrasive, and foreign material from the surface to be coated.

B. Furnish an instrument for measuring the wet film thickness, and also dry film thickness of each field coat of paint. The dry film thickness testing gauge shall be the magnetic type as manufactured by Elcometer Co., or the Nordson Gauge Co.; spring loaded model with two percent (2%) accuracy margin over a range of one-to-twenty-one (1-21) mils.

C. Certify to the owner that the specified paint has been applied at the paint manufacturer's recommended coverage, and to the specified thickness required. Also, certify that the paint has been applied in accordance with this contract.

D. Take all necessary steps, including dry striping by brush or roller, to ensure a holiday-free coating system.

E. The owner reserves the right to perform low voltage holiday tests on the exterior coating. The interior coatings are subject to low voltage holiday testing.

F. The owner and engineer reserve the right to perform destructive testing under conditions deemed necessary. Testing may include, but is not limited to, the Tooke thickness test and adhesion testing. Any damage caused by these tests will be corrected to specifications at the contractor's expense.

1.13 CLIMATIC CONDITIONS

A. Do not apply paint when the temperature, as measured in the shade, is below the manufacturer's required ambient and surface temperatures.

B. Do not apply paint (interior or exterior) to wet or damp surfaces, or during rain, snow, or fog.

C. Do not apply paint when it is expected the relative humidity will exceed 85%, or the surface temperature is less than 5° above dew point, or the air temperature will drop below the manufacturer's requirements for proper cure. Anticipate dew or moisture condensation, and if such conditions are prevalent, delay painting until the owner is satisfied the surfaces are dry.

1.14 APPLICATION

A. Complete all painting and surface preparation in strict accordance with these specifications, approved paint manufacturer's specifications, and good painting practices per SSPC.

B. Apply each coating at the rate and in the manner specified by the manufacturer. Check the wet film thickness every 200 sq. ft. to ensure each coat applied meets the dry film thickness range requirements.

C. Allow sufficient time for each coat of paint to dry or cure. Allow a minimum of

twenty-four (24) hours between coats.

D. Apply exterior coating by brush and roller only. Spray application is not permitted without prior approval of the engineer. Even with prior approval, responsibility for damage still remains with the contractor.

E. Painting or abrasive blast cleaning may be delayed because of poor coverage, the possibility of the paint drying too rapidly, or the potential damage from overspray and/or dry spray resulting from wind. In all cases, responsibility for damages rests with the contractor.

F. The contractor is responsible for the appearance of the finished project, and is warned to prevent contact with any freshly applied coating. Removal of rigging shall be completed so not to mar or damage the coating.

G. Coatings shall be applied using methods to eliminate roller or spray marks in the finished product on the exterior.

H. Stripe coat all wet and dry interior welds and crevices prior to application of full coat.

I. Additional coats required for coverage or to eliminate roller or spray marks are responsibility of the contractor at no additional cost to the owner.

J. Use of pole extension on spray guns is prohibited for exterior and interior application.

1.15 ENVIRONMENTAL SAMPLING

A. Collect eight (8) pre-project soil samples (4/tank), compile a map, and collect eight (8) post-project soil samples. Send samples to a NLLAP certified lab and test for total lead and chrome.

B. Sample waste from each portion of the project and keep waste segregated. Send to a NLLAP certified lab and test for TCLP for eight metals.

C. The owner reserves the right to collect samples and to send them their selected lab. This will be determined at the preconstruction meeting.

E. Pay all lab fees for 8 metals TCLP analysis on waste samples, total lead, and chrome on soil samples, and any subsequent testing fee if clean-up is warranted.

F. Complete all sampling in accordance with EPA protocol.

PART 2 - PRODUCTS

2.01 EXTERIOR TANK CLEANER

A. United 727 Weather-Zyme as manufactured by United Laboratories, 320 37th. Ave., St. Charles, IL 60174, 1-800-323-2594.

2.02a ABRASIVE with BLASTOX

A. The abrasive shall be 20-40 grade, or 30-60 grade coal slag blended with Blastox. The mixture shall be proportioned by supplier, but not less than 15% Blastox.

B. Other low dust abrasive may be used at the same proportion.

C. The abrasive shall be free of moisture, water soluble contaminants, dust, and oil.

D. The abrasive shall be stored and covered to prevent moisture contamination.

E. All leaking or spilling bags shall be removed, and affected areas properly cleaned.
F. All slag abrasive shall meet requirements of SSPC-AB1 Mineral and Slag Abrasive June 1, 1991-Grade 3.
G. The use of silica sand, flint sand, and glass beads is prohibited.

2.02b RECYCLABLE STEEL GRIT - ALTERNATE

A. Use recyclable steel grit size G-25 to G-50.
B. The abrasive is to be free of moisture, water soluble contaminants, dust, and oil.
C. The abrasive is to be stored and covered to prevent moisture contamination.
D. All leaking or spilling containers are to be removed, and affected areas properly cleaned.
E. All recyclable steel grit shall meet requirements of SSPC-AB1 Metallic Abrasives June 1, 1991.

2.03 ACRYLIC URETHANE - 4 COAT SYSTEM – EXTERIOR – TANKS 1 and 2 and EFFLUENT PIPING

A. The coating shall be an acrylic urethane system.
B. Tnemec Series 90-97/66/1074/1074UV has been selected as the coating standard. Use only products from one approved manufacturer.
C. The contractor is advised to follow all rules for safety while using isocyanates.

2.04 EPOXY POLYAMIDE - 3 COAT SYSTEM with ZINC PRIMER - WET INTERIOR

A. Three (3) coat epoxy polyamide system meeting all National Sanitation Foundation certification standards for potable water contact.
B. Tnemec Series 91H_2O/20/20 has been selected as the coating standard. Use only products from one approved manufacturer.
C. Interior and exterior coatings may be from different manufacturers.
D. Add fourth coat of Delft Blue to all exposed surfaces.

2.05 EPOXY - 2 COAT SYSTEM – PIT PIPING – TANKS 1 and 2

A. The dry interior coating shall be a high build epoxy system.
B. Tnemec Series 90-97/66 has been selected as the coating standard.

2.06 COLOR

A. Supply the engineer with a color chart to allow the owner ample time for color selection.
B. Factory tint the intermediate coat(s) if similar to the finish coat. Tinting shall be sufficient to allow visibility of the dissimilar color from 1 ft., and from 100 ft.
C. The owner will select the color, after evaluating the bids. The owner recognizes the additional cost for deep color paints. All bids shall be based upon common "sky-blue" color. After the color is selected, document the difference in cost and quantity used for the selected color, and the owner will issue a change order for the exact cost differential only.

D. Documentation of additional cost is the responsibility of the contractor, and must be supplied two weeks before application. If necessary documentation is not supplied, any additional cost will be borne by the contractor. If selection/application time is less than two weeks, then as soon as possible. The owner has the right to switch to a less expensive color; therefore, the contractor must submit cost before ordering paint.

2.07 CONTAINMENT SHROUDS

A. All shroud material and superstructure shall be non-penetrating, nylon rip-stop material manufactured by Eagle Industries or approved equal. Approval of alternate material will be based on density, weight, support strength, stitching, reinforcement, home office experience, and staff assistance.

2.08 CONTAINMENT CONNECTIONS to TANK

A. Steel Plating and other Structural Shapes - ASTM A36
B. Bolts - ASTM A307
C. Welds - E70XX Electrodes

2.09 DUST COLLECTORS - AIR FILTRATION UNITS

A. Furnish and use 40,000 cfm dust collectors equal in filtration capacity to Eagle Jet Clean, Model 40D, or 40E. Other units may be used, but their substitution will be evaluated on efficiency at 0.5 micron size and airflow movement.
B. Substitution of steel grit blasting may decrease the requirement of above. New requirements will be defined by the engineer based on the efficiency of the contractor's equipment.
C. Furnish HEPA filters for dust collection.
D. Number of dust collectors shall be sufficient to supply a 50 ft./minute downward draft at most areas. An average may be considered. Determination of actual containment plan will be the deciding factor. Calculations of airflow shall be included in the containment submittal.
E. Use only new filters or filters certified clean.

2.09 DEHUMIDIFICATION and HEATING – WET or DRY INTERIORS

A. Supply dehumidification/heating units capable of maintaining dew point temperature lower than 15° below surface temperature during blasting and lower than 5° during coating application and cure, and steel temperature maintained above the manufacturer’s printed requirements.
B. Size units for complete air exchange every one hundred and twenty (120) minutes minimum.
C. Supply a dehumidifier designed with a solid desiccant having a single rotary desiccant bed capable of continuous operation, with full automatic operation. Do not use liquid desiccant, granular, or loose lithium chloride drying systems. Refrigerant systems may be used in conjunction with desiccant units.

D. Plumbing, noise control, insulation, venting, and all incidental items needed to provide proper ambient conditions shall be included as one package.
E. Supply and maintain a power source for the dehumidifier and heater, unless otherwise specified.

2.11 DECONTAMINATION FACILITY

A. Provide a climatic controlled decontamination facility. The decontamination facility must include a minimum of three separate areas: a dirty area, a showering area, and a clean area. The unit shall be as manufactured by Eagle Industries of Louisiana, Inc.
B. Entry and exit into the showering room must be through an approved airlock designed to prevent cross-contamination between any two areas.
C. Equip the clean room with adequately sized lockers for each worker to secure and store clothing, valuables, and other personal belongings.
D. Equip the decon facility with an onboard ion exchanged lead filtration system capable of filtering all wastewater generated during hand washing operations, showering, laundering of towels and clothing, or from any other water used in cleaning.
E. Recordkeeping log signed by each employee upon exiting that time was provided and decon procedures have been followed.

2.12 EQUIPMENT COVERING

A. Use material that is 8 - 20 mils thick and 100% impermeable to cover pumps, motors, and other vulnerable equipment.
B. Use material resistant to tear and/or rip by mechanical action from abrasive blasting during blasting operations.
C. Make coverings airtight by use of duct tape at the openings, or other suitable measures.
D. Meet with representative of equipment owner to verify covering will not damage equipment. Damage is contractor's responsibility. This includes not only the owner's equipment, but also telecommunication antennas, cables, buildings, controls, etc.

2.13 GROUND TARPS

A. Use impermeable ground tarps, 20 mils thick.
B. Use ground tarps able to withstand the anticipated construction traffic without tearing or separating.

2.14 SUBSTITUTIONS

A. All coatings specified and approved herein have met or exceeded a specified list of ASTM standards. The materials specified are the standard to which all others shall be compared.

B. The purpose is to establish a standard of design and quality, and not to limit competition. All ASTM tests were performed in the presence of a representative of Dixon Engineering, Inc.

C. Other manufacturers wishing to have their products approved have also had their coatings tested using the same representative of Dixon Engineering, Inc., and the same test methods. The manufacturers of those system that have met all ASTM Standards have been given a letter of acceptance as an equal coating. Any bidder wishing to use materials other than those specified shall verify with the manufacturer if he has a letter of acceptance by Dixon Engineering, Inc. The engineer will have on file a list of approved coating products and manufacturers for specified applications.

D. Approval by ANSI/NSF Standard 61 is also a requirement for interior coatings.

E. The selection of coatings also has taken into consideration the manufacturer's current and past performance on availability, stocking, and shipping capabilities, ability to resolve disputes, and any applicable warranties.

2.15 AIR DRYER for COMPRESSOR

A. Use air dryers sufficient to remove 98% of the moisture from the compressed air. Size air dryers based on total cfm using manufacturer supplied charts. Upon request, supply charts to engineer for verification.

B. If the fan is not operable, cease all blasting until the dryer is replaced or repaired.

C. Supply air dryer with an air draw-off valve to check air for dryness, oil contamination, and cleanliness on the outlet side of the air dryer.

D. For cleaning operations, draw clean air from the outlet side of the air dryer.

PART 3 - EXECUTION:

3.01 PRE-SURFACE PREPARATION – EXTERIOR – TANKS 1 and 2, and EFFLUENT PIPING

A. Low pressure water clean at 4,000 psi all surfaces and appurtenances to remove mildew, soot, and other contaminants.

B. Use a biodegradable algicide for the exterior approved by the engineer.

C. Hand wash with a higher concentration of algicide any mildew not removed by power washing.

D. Mix algicide at level recommended by manufacturer, but not at a level that could result in an environmental problem.

3.02 SURFACE PREPARATION – INTERIOR

A. Low pressure water clean at 4,000 psi all surfaces and appurtenances to remove minerals, soot, and other contaminants.

B. All abrasive and grit material used, and all equipment supplied shall be subject to approval of the engineer. The abrasive or grit shall be sharp enough and hard enough to remove the mill scale, rust, and paint.

C. Rate of cleaning to be determined by the engineer.

3.03 COMMERCIAL (SSPC-SP6) DRY BLAST – EXTERIOR EFFLUENT PIPING and PIT PIPING

A. Abrasive blast clean all surfaces and appurtenances to a commercial finish (SSPC-SP6), latest edition thereof.

B. Maintain a profile of 1.0 - 2.0 mils on abrasive blast cleaned surfaces.

3.04 NEAR-WHITE (SSPC-SP10) DRY BLAST – INTERIOR and GRATING

A. Abrasive blast clean all surfaces and appurtenances to a near white finish (SSPC-SP10), latest edition thereof.

B. Maintain a profile of 2.0 - 3.0 mils on abrasive blast cleaned surfaces.

3.05 ACRYLIC URETHANE – EXTERIOR – TANKS 1 and 2 – EFFLUENT PIPING

A. Apply to all prepared surfaces and appurtenances a three (3) coat urethane system.

B. Surface preparation and paint requirements have been previously defined. Apply all coating by brush and roller. Spray application is prohibited.

C. Apply each coat at the following rates:

Coat	Tnemec Series	Minimum D.F.T.	Maximum D.F.T.
Primer	90-97	2.0	3.0
Intermediate (full)	66	2.0	3.0
Topcoat	1074	2.0	3.0
Clear Coat	1074UV	2.0	3.0
Total		8.0 mils	11.0 mils*

*The total minimums add, but the maximums do not. The maximum cannot be achieved on every coat.

D. The contractor is advised that Dixon Engineering, Inc. will take mil readings on the exterior per SSPC-PA2 which requires gauge adjustment from magnetic plane to peak plane.

3.06 ZINC EPOXY - WET INTERIOR - 3 COAT SYSTEM – TANKS 1 and 2

A. Apply to all prepared surfaces and appurtenances a three (3) coat zinc epoxy.

B. Surface preparation and paint requirements have been previously defined.

C. Apply each coat at the following rates:

Tnemec Series	Minimum D.F.T.	Maximum D.F.T.
91H_2O	2.5	3.5
20-1255	3.5	4.5
20-WH02	3.5	4.5
20 – Delft Blue	(3.5)	(4.5) top shell section
Total	9.5 (13.0 mils**)	11.5 * (16.0 mils**)

*The total minimums add, but the maximums do not. The maximum cannot be achieved on every coat.

**Coat top shell section and all exposed epoxy with one (1) additional coat of epoxy; color Delft blue. Straight line bottom of top section. All surfaces with less than 2 ft. of water cover are considered exposed epoxy.

D. The contractor is advised that Dixon Engineering, Inc. will take mil readings on the interior per SSPC-PA2 which requires gauge adjustment from magnetic plane to peak plane.

3.07 2 COAT EPOXY - PIT PIPING and DRY INTERIOR

A. Apply to all prepared areas a two (2) coat epoxy system.

B. Apply an epoxy primer coat (beige), and an epoxy topcoat (white).

C. Apply each coat at the following rates:

Coat	Tnemec Series	Minimum D.F.T.	Maximum D.F.T.
Primer	90-97	3.5	5.5
Topcoat	66-WH02	3.5	5.5
Total		7.0	10.0*

*The total minimums add, but the maximums do not. The maximum cannot be achieved on every coat.

D. Each coat shall be the color specified and shall be approved by the engineer.

E. No color bleed-through should occur if proper application rates are observed. All coats shall be uniform in color and sheen without streaks, laps, runs, sags, cloudy, or missed areas.

F. A minimum of twenty-four (24) hours shall be allowed between coats.

G. Protect all areas not requiring painting, including all electrical boxes for the controls, cathodic protection rectifiers, relay antennas, insulation, conduit, safety devices, etc.

3.08 HOT DIP GALVANIZING – GRATING

A. Remove all galvanized grating – some of the grating may be painted. This does not include stairs welded to the supports.

B. Abrasive blast clean to a SSPC-SP10 near white blast.

C. Hot dip galvanize per ASTM A123 specifications.

D. Payment is a separate line item “Grate Galvanizing” which the owner reserves the right to delete.

3.09 PROTECTION of NON-WORK AREAS – CONTROLS and GEARS

A. Protect all non-blasted surfaces prior to all abrasive blast cleaning. Thoroughly cover the fill/drain pipe, overflow pipe, and all other openings. Do not permit abrasive or paint chips to enter into the piping or distribution system. Use watertight seals on the pipes.

B. Protect and seal all controls (even if they are not in the immediate work area) that are in danger from the project (i.e. cathodic controls in the basebell when work is on the wet interior). Work with the owner so all controls are shutdown or vented if necessary.

C. Cover the pit with boards and tarping to prevent debris from entering. Remove all debris, spent abrasive, etc. from the pit at project completion.

3.10 DISINFECTION (NOT APPLICABLE to this PROJECT)

A. Do not allow water to enter the distribution system until the structure is proven chemically and bacteriologically safe.

B. Water vented to waste may not contain any substances in concentrations that can adversely affect the natural environment. No total residual chlorine may be measured in water discharged to surface water.

C. Pay all additional expenses if it is necessary to repeat the testing and disinfection procedure as the result of defective work or defective testing.

3.11 PIPING – PIT

A. Abrasive blast clean to a commercial grade (SSPC-SP6) all major pipes and valves (fill line for bypass) in the pit, and apply a two (2) coat epoxy system.

B. Stripe to eliminate holidays in crevices, flanges, bolt heads, etc. Painting includes steel or cast pit cover.

C. Payment shall be a separate line item "Pit Piping" which the owner reserves the right to delete.

3.12 CONTAINMENT - RIGID FRAME - ABRASIVE BLASTING

A. Furnish and install a total containment system to be used during all exterior dust generating work in accordance with SSPC-Guide 6-Class 1A. System shall be rigid in-place.

B. This specification is intended to be performance based. Alternative procedures to accomplish the same purpose of dust or lead elimination may be submitted for review. The final determination if the alternate performs as well as total containment will rest solely with the engineer. Printed material and test results by independent firms will be considered, but not govern. Rejection of an alternative after bid opening will not relieve the contractor of any responsibility to complete the work as bid unless his bid states his bid is to be withdrawn if the alternate is rejected. Submit a sketch of all alternate containment procedures with bid.

C. Contain the spent abrasive and paint chips to an area immediately under the structure. No abrasive release outside the structure will be permitted. All methods of shielding shall contain the abrasive within the confines of the shrouds. The shrouds will be erected on all sides of the tank for 360^{o}, including roof and ground.

D. Containment system to be a rigid system, 99% efficient Type 1-A in accordance with SSPC-Guide 6 - guide for containing debris generated during paint removal operations.

E. Scaffold Wrap: System to be a regular Scaf-Lite Scaffold Sheeting as manufactured by Eagle.

F. Overlap all seams by 6 in. Completely seal all seams by stitching, taping, caulking, or other approved sealing measures.

G. Immediately replace any damaged sheets. Discontinue abrasive blast cleaning operations until the damaged shrouds are replaced or repaired.
H. Manufacturer to certify that scaffold framework will support design loads, as well as working load of contractor, blast hoses, and inspectors. Manufacturer shall "green tag" scaffolds as safe work platforms, or provide sufficient separation for contractor's equipment to operate inside the scaffold.
I. Use rigid framed containment on both coagulation tanks and all effluent piping.

3.13 CONTAINMENT OPENINGS - RIGID FRAME CONTAINMENT

A. Design a means of ingress and egress of the containment structure. Access shall be through a resealable door with an airlock.
B. Size of the structure shall be 8 ft. x 8 ft. x 6 ft. high. Dedicate one section of the scaffolding. Construct the chamber out of 6 ft. high scaffold sections. Install the scaffold so the majority of the scaffold is extended out from the containment. Minimum clear walking height shall be 54 in. Minimum width shall be 42 in.
C. Fabricate the opening for exhaust air piping with a minimum 18 in. long tunnel firmly attached. Maintain the exhaust piping in as straight a line as possible to avoid restricting airflow. Exhaust air attachments may be elsewhere other than the entryway if your Lead Health and Safety Director determines it an unsafe condition.
D. Supply an operating HEPA vacuum in the entryway to vacuum off workers leaving the containment. Maintain vacuum clean and serviced.
E. Design and construct the above ingress/egress at ground level for each tank.
F. Design and construct a second ingress/egress on the roof platforms.
G. See other sections and prebid meeting for additional openings and jersey walls for inspection.

3.14 GROUND COVER - RIGID FRAME CONTAINMENT

A. Protect the ground from lead contamination. Include the area inside the containment, and a 50 ft. diameter around the outside of the containment.
B. Lap all ground tarps a minimum of 2 ft. Lap the inside ground tarp up 2 ft. on the outside of the vertical shrouds. Lap the outside ground tarps 2 ft. under the inside tarps with slots for scaffold. This will prevent loss of abrasive material between the ground and vertical shrouds.
C. Cover all ground from the treatment building to the tanks.

3.15 TANK CONNECTIONS

A. In submittal, request approval of all welding and cutting on the tank's roof and platforms.
B. Cut all approved holes into tank with rounded corners.
C. Use a welder certified to complete the type and position weld necessary for attachment.
D. All steel must be cleaned of lead paint by approved method before cutting or welding.

E. Any connections to platforms or walkways that add loading to that platform/walkway requires a structural calculation of the additional loading. Base loading on 50 mph wind. Submit calculations showing safe loading with seal of a current, licensed Professional Engineer in the State of Virginia.

3.16 WORKMANSHIP

A. The intent of these specifications is to provide the material and workmanship necessary to produce a first class job.

B. Complete all welding strictly in accordance with the most recent publication of AWWA D-100 Standards, the most recent American Welding Society Standards, and the most recent ASTM Standards, where applicable. Perform welding in a manner satisfactory to the engineer.

3.17 DAILY SHUTDOWN - RIGID FRAME CONTAINMENT

A. Clean all ground tarps daily. Collect all debris and store in barrels. Roll all tarps for storage, including all tarps inside containment. The purpose is to prevent the debris from being blown off the tarps.

3.18 DUST CONTAINMENT – EXTERIOR

A. Do everything within industry standard to minimize dust as a nuisance. Required procedures include: angle of abrasive impact, direction of nozzle spray, orifice pressure, and work stoppage due to wind speed or direction.

B. Complete any additional measures required in these specifications. There will be no negotiations for extra compensation for nuisance complaints and corrective measures.

C. Fully inspect the area, land use, and other pertinent local conditions prior to bidding exterior work.

D. Do not permit dust, abrasive, or paint chips to fall a distance beyond the property line or ground cover.

E. Do not permit any visual dust release when transferring abrasive from either the interior or exterior of the structure to the dumpsters. Suppress dust with tarps or water, or other pre-approved method.

3.19 VENTILATION REQUIREMENTS

A. Supply mechanical ventilation sufficient to change air in the mix basins and other zones where engineer determines the air does not change sufficiently (6/hr.) by gravity upflow.

B. Ventilate designated wet interior areas a minimum of seven (7) days after completion of painting, or longer until the wet interior coating has fully cured. Maintain ventilation at the rate of two (2) complete air changes per hour.

C. Cost of ventilation is incidental to respective paint project.

3.20 DEHUMIDIFICATION/HEATING

A. Control the environment with dehumidification equipment twenty-four (24) hours a day during blast cleaning, coating operations, and cure time. Maintain minimum ambient conditions until cure completion.

B. Supply sufficient dry air to assure the air adjacent to surfaces to be abrasive blast cleaned or coated does not exceed minimum required humidity at any time during the blasting, coating, or curing cycle.

C. Monitor and record ambient conditions twenty-four (24) hours a day throughout abrasive blast cleaning and painting work. Dehumidification equipment to be equipped with Munters ExactAire monitors. Monitor to be capable of being programmed with condition parameters and of alerting User/Owner via phone, fax, pager, or e-mail of condition or equipment failures. An approved monitoring device may be used instead of Munters ExactAire system, Dickson Model TH6, or equivalent.

D. Test interior ambient conditions three (3) times a day, or more often with rapid weather changes. Record daily readings. Adjust or add equipment as required to maintain steel temperature, dew point, and humidity. (This is a check on and in addition to the recorder in C above.)

E. Use a minimum 9,000 cfm dehumidification unit for tanks 1,500,000 to 3,000 gallons; and 11,250 cfm dehumidification unit for tanks 4,000,000 – 6,000,000 gallons. A smaller unit may be used for effluent piping containment.

F. The Contractor may subdivide the interior into smaller sections for dehumidification.

G. Surround the units with noise suppressant enclosures, unless units are sound attenuated or have noise suppressants. More extensive enclosure requirements are required in residential areas where the machines must run all night. Noise suppressant level needed will depend on the size of dehumidification units, their efficiency, and their locations. Provide noise suppressant enclosures of sufficient height and thickness to lower noise to an acceptable level for neighbors. Also provide noise suppressant enclosures for generators.

H. Auxiliary heaters may be necessary to maintain the surface temperature at a level acceptable to the coating manufacturer's application parameters. This auxiliary equipment must be approved for use by the manufacturer of the dehumidification equipment and shall meet the following requirements. Auxiliary ventilation equipment and/or dust collection equipment can affect the exchange rate.

   1. Heaters shall be installed in the process air supply duct between the dehumidifier and the work, as close to the work as possible. Air heaters are not acceptable as a substitute for dehumidification.
   2. Use only electric or indirect gas fired auxiliary heaters. No direct fired space heaters will be allowed during blasting, coating, or curing phase.

I. Seal off the work, allowing air to escape at the bottom of the space away from the point where the dehumidified air is being introduced. Maintain a slight positive pressure in the work unless the dust from the blasting operations is hazardous.

J. Where necessary to filter the air escaping the space, design the filtration system to match the air volume of the dehumidification equipment in such a way that it will not interfere with the dehumidification equipment's capacity to control the space as described herein. Do not recirculate the air from the work or from filtration equipment back through the dehumidifier when coating or solvent vapors are present. Outside air is to be used during those periods.

K. Securely attach duct work to the equipment and work to minimize air loss. Design hoses with sufficient capacity and minimal bends to reduce friction loss.

L. Dehumidification and its operating power source are incidental to the respective painting project (wet or dry interior).

M. Set-up and operate equipment twenty-four (24) hours (or earlier) prior to start of blasting, and twenty-four (24) hours after all water has been removed from the tank.

3.21 TESTING and CLEAN-UP of WASTE

A. Daily collect all spent abrasive from the ground tarps and dispose in the required receptacles.

B. Furnish containers with proper labels for storage of the spent debris. Containers shall meet requirements of the EPA for hazardous waste disposal. The spent abrasive will be moved directly from the tank into the waste containers. The containers will remain until final test results have been received. Furnishing containers with covers will be incidental to respective repaint, and will not be affected by the owner's final selection of respective interior or exterior disposal.

C. There are accepted procedures for abrasive blast cleaning and paint removal that do not generate a hazardous waste. Sometimes it is more economical and safer to generate a hazardous waste than to use these procedures. That is a "ways and means" decision by the contractor. If TCLP testing determines the waste abrasive to be hazardous, the contractor will be assessed a $500 fee to obtain an EPA generator number and for the additional required paperwork. If the contractor plans to dispose the waste as hazardous, include this cost in the respective paint item. If the contractor tries other procedures (Blastox, EPTOX, steel, etc.) and the waste is still hazardous, this fee will still be assessed.

D. If procedures are properly followed, all waste should be non-hazardous.

3.22 WASTE DISPOSAL - NON-HAZARDOUS

A. If after testing of the spent abrasive material the TCLP tests indicate the abrasive is not a hazardous waste, dispose the abrasive in a waste disposal facility.

B. All waste shall be handled by a licensed hauler. Supply the owner with all proper documentation of the final disposal site. The actual bill of lading and all manifests will be required prior to any payment.

C. Payment for this waste disposal is incidental to interior or exterior painting.

3.23 HAZARDOUS WASTE DISPOSAL by CONTRACTOR - LEAD CHROME PROJECTS

A. Contract directly with a licensed hazardous waste hauler who is properly licensed in the State of Virginia to haul hazardous material.
B. Transport the debris for treatment to a licensed hazardous waste treatment site.
C. The contractor will not be paid any retainage until paperwork has been submitted, including submittal of the hazardous waste manifest. An original of the hazardous waste manifest shall be returned to the owner.
D. Remove all hazardous waste from the site within thirty (30) days of completion of the blasting portion of the project.
E. Payment for disposal of hazardous waste is the responsibility of the contractor.

3.24 DOCUMENTATION

A. Supply proper documentation of storage, transportation and treatment, or disposal of the waste to the owner. The owner will retain sufficient funds to pay for hazardous waste transportation, treatment, and any possible fines until all documentation has been received. This retainage will be held, even if the waste has tested non-hazardous.

3.25 LIGHTING of WORK SPACE

A. Provide durable lighting fixtures designed for the intended work environment for use during blasting, painting, and during all inspections.
B. Encase portable lamps in a non-conductive, shatterproof material. Use only heavily insulated cable with an abrasive resistant casing.
C. Install all temporary electrical items in accordance with all local, state, and federal codes, including OSHA.
D. Protect from paint overspray and damage from abrasive materials.
E. Measure required illumination during surface preparation and coating application at the work surface. Supply 50 ft. candles minimum illumination during blasting and painting and 200 ft. prior to and during inspection, per SSPC Guide-12. Inspect the prepared surface at the higher illumination prior to calling for inspection. All work must conform to specification requirements prior to the scheduled inspection.
F. Measure the illumination at the work surface in the plane of the work.

3.26 SCHEDULE of WORK

Item	Surface Prep		Coating	
	Abrasive	Method	Material	Application
Exterior – Tanks 1 and 2	2.02a or 2.02b Coal slag with Blastox or steel grit. Abrasive blast clean to SP6 with containment.	3.01/3.03	2.03 4 coat urethane.	3.05
Effluent Piping	2.02a or 2.02b Coal slag with Blastox or steel grit. Abrasive blast clean to SP6 with containment.	3.01/3.03	2.03 4 coat urethane.	3.05
Interior – Tank 1	2.02b Steel grit. Abrasive blast clean to SP10.	3.02/3.04	2.04 3 coat epoxy with zinc primer.	3.06
Interior – Tank 2	2.02b Steel grit. Abrasive blast clean to SP10.	3.04	2.04 3 coat epoxy with zinc	3.06
Pit Piping – Tanks 1 & 2	2.02a or 2.02b Coal slag with Blastox or steel grit. Abrasive blast clean to SP6.	3.03/3.11	2.05 2 coat epoxy with zinc.	3.07
Grating	2.02b Coal slag or steel grit. Abrasive blast clean to SP10.	3.04	-- Hot dipped galvanizing.	3.08

PART 4 – MISCELLANEOUS

4.01 BIRD ROOST PROTECTION

A. Furnish and install a bird roost protection system on all flat or possible roost points over the top of the tanks.

B. Use polycarbonate spiked Bird X roost inhibitor, narrow size for most applications (wide size may be required on some structural components).

C. Attach to the surface using stainless steel bolts. Attach per manufacturer's recommendations.

D. Payment is incidental to exterior repainting of Tanks 1 and 2.

4.02 REPLACE LIGHTNING RODS

A. Remove the existing lightning rods, connections, and cables from the Coagulation Tanks.

B. Furnish and install a new lightning protection system on each tank.
C. Comply with NFPA 780 design.
D. Manufacturer to be ERITECH Lightning Protection/Grounding 1-800-248-9353,or approved equal.
E. Use Class 1 materials (buildings are less than 75 ft. high).
F. Installation to be by L.P.I. Certified Master installer, or Underwriters' Laboratories listed installer, or under supervision thereof.
G. Use 3 ft. long nickel plated copper points (rods) with ? in. diameter, spaced every 20 ft. on center around the circumference of the tank. Use 17 gauge (32 strands) smooth weave cable.
H. Attach cables tightly to the bottom side of the lip at the top of the sidewall. Cable to run around the outer circumference and down the overflow pipe.
I. Attach the cables using copper or bronze fasteners every 6 ft. around the circumference and down the overflow pipe.
J. All cable splices to be made of copper. Use bolted splices.
K. Grounding shall be suitable for the soil conditions per NFPA 780. Ground behind overflow pipe with ? in. copper rod drilled into ground through concrete.
L. Payment is a separate line item "Replace Lightning Rods"

4.03 FENCE REPLACEMENT

A. Remove the fence from the catwalk. Furnish and install a new vinyl clad chain link fence.
B. Fence to be a 6 gauge PVC covered chain link fence with 2 in. mesh as manufactured by Sonco Worldwide, P.O. Box 40, 5000 Windom Road, Bladensburg, MD 20710 1-800-457-6626.
C. Install per manufacturer's recommendations.
D. Cost is incidental to effluent pipe repainting.

CATHODIC PROTECTION
SECTION 16000 – COAGULATION TANKS

PART 1 - GENERAL

1.01 DESCRIPTION

A. SCOPE: Furnish and install a complete automatic controlled impressed current cathodic protection system to prevent corrosion on the submerged interior surfaces of the water storage tank. All work and material are to meet the standards established in AWWA D104-01-Automatically Controlled Impressed-Current Cathodic Protection for the Interior of Steel Water Tanks.

B. CONFLICTS: Requirements contained in these specifications apply to and govern the work under this section. All General Condition items and Information for Bidder items applicable or contained in these specifications apply. This Technical Specification is intended to expand the General Conditions and/or other Technical Specifications and is not intended to conflict or override any items unless specifically stated. If a conflict is noted, the engineer will review prior to proceeding with the project. If a conflict does exist, the Technical Specifications govern over any General Conditions or Information for Bidders.

1.02 QUALIFICATION of CATHODIC PROTECTION MANUFACTURER

A. The bidder is to have a minimum of five (5) continuous years of successful experience in the manufacture, installation and servicing of automatic cathodic protection systems for water storage tanks. The bidder is to have a permanent service organization located within three hundred (300) miles of the tank location. The contractor (manufacturer) is to have a minimum of twenty-five (25) successful units installed in water storage tanks. The manufacturer and/or his subcontractor must own and maintain or lease the equipment necessary for installation and have proper training in regard to the safety requirements.

B. New firms may also bid this project; however, they will be subjected to thorough review based on individual experiences of staff, proof of the continuation with firm (i.e. stock ownership, etc.) and financial stability of the firm. Essentially, they will be required to provide sufficient documentation to convince the owner they will be available throughout the ten (10) years to service the system, if needed.

1.03 SHOP DRAWINGS

A. Within three (3) weeks after the contract is awarded, furnish six (6) sets of shop drawings detailing the proposed installation for review. Submit detailed shop drawings for all items specified.

B. Submit three (3) sets of Operation/Maintenance Manuals directly to the owner.

1.04 GUARANTEE

A. Guarantee the cathodic protection system against all defects in materials and workmanship and further guarantee to prevent corrosion, when maintained in a continuous operation in accordance with the contractor's instructions, as evidenced by the absence of pitting (or additional pitting) below the high waterline in the tank for a period of one (1) year. The requirement of a maintenance contract may be beneficial, but cannot be made a precondition to this warranty. In the event corrosion is not prevented, the contractor is to readjust, repair, or replace the system. Guarantee the reference anodes for five (5) years. It is the intention of the owner to inspect the tank, as necessary, to review the performance of the cathodic protection system.

1.05 DESIGN and PERFORMANCE REQUIREMENTS

A. DESIGN CRITERIA:

1. The tanks are a 4,000,000 gallon and 1,700,000 gallon coagulation water storage tanks. It is approximately 77 ft. to top of the tanks.
2. The tanks' interiors were coated with an epoxy system with a zinc primer, applied as part of this project. Total bare surface area to be protected shall be 50% of the tank surface up to the high waterline.
3. Design tank-to-water potential is to be -900 mv with units capable of adjustment from -850 mv to -1050 mv. The design potential is to be IR drop-free (type A) and based on a copper/copper sulfate reference anode.
4. Minimum current density is to be 0.5 MA/sq. ft. of the bare surface area.
5. The minimum design anode system life is to be ten (10) years.

B. The intent of these specifications is to procure a quality product by an established manufacturer of the latest design. Cost of the equipment is to include all royalty costs arising from patents and licenses associated with furnishing the specified equipment. Design all material to withstand the stresses created under ice conditions. Use the latest state-of-the-art "permanent" system which is designed to be ice-free and designed for use on tanks with ice conditions. Use corrosion resistant materials for all equipment, or protect with corrosion resistant industrial coating approved by the engineer.

PART 2 - PRODUCTS

2.01 CATHODIC PROTECTION SYSTEM

A. Provide a cathodic protection system (ice-free) which is to be a suspended or floating ring-type system. Furnish all items, as necessary, for the complete operating system.

B. Use a two (2) ring system to protect the sidewalls and outside of mixing basins. Both rings may be on the same circuit.

C. Provide individual anodes for inside the mixing basins and other sections (inside downspout).

D. Provide a separate circuit and reference anodes for individual anodes or anode wire.

E. Effluent piping and inside of effluent troughs are not included.

2.02 MATERIALS

A. Furnish materials of the best quality, regularly used in commercial practice and conforming to the following specifications. Specifically design the cathodic protection system for operation in icing conditions and protect against damage from ice.

B. Supply only materials for use inside the wet interior (i.e. all material in contact with water that meets NSF 61 Standards and bears the NSF or UL label verifying compliance).

C. Mount the power unit as directed in Part 3 - Execution in a stainless, waterproof cabinet suitable for outdoor use, adequately ventilated with stainless steel screens, and with provision for locking. Secure cabinet by using mounting brackets. If mounted on steel, electrically isolate from steel with non-conductive insulators.

D. Use an electrical insulating material having suitable thickness and mechanical strength for the mounting board. Mount accurate D.C. meters with a D.C. voltmeter on the panel board for indicating output of rectifier.

E. Include a potential indicating voltmeter on the panel board. This voltmeter is to be part of the sensing circuit, and is to continuously indicate the structure potential value which the control system is maintaining.

F. Panel Board is to contain the following equipment:

1. Power Unit: The power unit is to have the necessary circuit breakers, transformer, selenium or silicon rectifying elements, voltmeter(s), ammeter(s), lightning, surge, overload protection, wiring, and appurtenances of adequate capacity to meet the requirements established by the Engineering Survey for each corrosion problem. Provide a power unit with voltage adjustments to regulate the current required for corrosion control. The unit is to be adjustable over the entire range of 0-100% of rated capacity. Design the power unit for Single Phase, 60 Hz, 110-120 volt A.C. rated to operate at an ambient temperature of 45° Centigrade. Include a circuit breaker for the A.C. and an overload relay in the D.C. circuit. The entire power unit is to be fully field serviceable. The overall efficiency of the power unit is to exceed 65%, and the power factor is to exceed 90% of full load and rated voltage to the power unit, in the conversion of A.C. to D.C. The power factor is to be greater than 85% at outputs exceeding 25% of the rated capacity.

2. Automatic Controller: House the controller integrally with the rectifier unit The automatic controller is to be completely solid state design having no moving parts and capable of automatically maintaining the tank-to-water potential at (-)900 millivolts with respect to a copper-copper sulphate reference electrode within an accuracy of 25 millivolts. The tank-to-water potential measured and maintained by the controller is to be free

of "IR" drop error (type A).

3. Rectifier: Use non-aging tri-amp selenium or silicon rectifiers of the approved selenium type, as manufactured by General Instrument Corporations or equal for rectifier stacks. The rectifier stacks are to have adequate cooling fins so their normal temperature rise at rated capacity will not exceed that specified by the N.E.M.A. and by the manufacturer of the rectifier stacks for cathodic protection service. Use air-cooled rectifier stacks.

   Design the transformer for use in cathodic protection rectifiers having separate primary and secondary copper windings. The rectifiers are to be capable of automatically adjusting output to maintain potential within +/- 25mv of -900mv, and to be adjustable over 0-100% of its rated capacity.

4. Tank-to-Water Potential Meter: Equip the controller with a calibrated potential monitoring and display circuit having an integral impedance exceeding 1000 megohms which is to be so connected to read, from the system reference cell, the tank-to-water potential being maintained by the cathodic protection system.

   This voltage reading is to be free of "IR" drop error.

   NOTE: If a digital readout is provided, provide access to all readings required above.

G. Run positive wires from the power unit to the anode circuits in rigid steel conduits, as established by the National Electrical Code for the allowable current-carrying capacity. Use rigid, galvanized steel conduit. Use State code for underground wire. Use HMWPE (High Moly) wire from the rectifier to and in the tank)

H. Equip the system with a copper-copper sulfate reference electrode designed for a minimum five (5) year life. Install two (2) electrodes on opposite sides of the tank/circuit. If either electrode fails within five (5) years, replace as often as necessary, free of charge to the owner.

I. Design the anode system for a minimum life of ten (10) years and securely attach to the tank to prevent damage from ice conditions. Include all labor and material for installation of the anodes, and use submerged floating anodes. The anode system uses platinized niobium wire anodes with a minimum diameter of 0.062 in. w/25 micro in. of platinum for the system. Attach the anodes to a buoyant submerged structure which is maintained in a totally submerged condition, down to the minimum water level by flexible attachment to the interior tank walls or access tube. Anode and reference electrode lead wires are to enter the tank below the minimum water level through pressure tight fittings. Use 3,000 lb. couplings for fitting. Use a separate cord to encircle the supporting cord approximately 8 in. greater radius and design the cord to relieve tension in the loading. Use $^{5}/_{16}$ in. polyester or nylon rope.

J. Protect all units using lightning arresters, surge protectors, and automatic overload protection in all modes and comply with all FCC regulations. All patent requirements are the responsibility of the contractor.

2.03 ALARM and TELEMETRY CONTROLS

A. The alarm and telemetry circuits are to be a secondary system designed to read controls and not to interfere in any manner with the primary controls. Use four-to-twenty (4-20) milliamp sensors to read voltage, amperage and potential of both circuits. One alarm light shall be furnished on the cover of the rectifier box. The light shall be activated by a change in amperage, voltage or potential which would signal a possible system failure.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The cathodic protection system is to be installed by full-time employees of the supplier of the system who are specifically trained to install and service water tank cathodic protection systems. Subcontractors who are specialized tank personnel may install the cathodic protection system under direct, on-site supervision by a responsible employee of the manufacturer.

B. Install clips, pressure fittings, mounting supports, and brackets prior to abrasive blasting.

C. Supply cathodic clips and coupling with location information.

3.02 WELDING

A. Complete welding of wall attachment clips by a certified welder and use **3** in. fillet welds all around. No area may be left which would be susceptible to crevice corrosion.

B. Weld the pressure fitting with **3** in. fillet continuous welds all around on both the tank=s wet interior and exterior.

C. Weld a control panel mounting bracket in-place with **3** in. continuous fillet weld in the interior basebell, as designated by the owner and engineer.

3.03 INSTRUCTIONS

A. After installation is complete, energize the system and adjust for optimum operations. After the unit is adjusted, take tank-to-water potential measurements using a copper-copper sulfate reference electrode. Submit a report to the engineer, including all the test results obtained.

B. After supervision of inspection and start-up operations, provide one (1) additional day for training of the owner and/or his representative. The training is to include minor troubleshooting practices, recordkeeping, and methods used to determine the effectiveness of the system. The training period is at the owner=s discretion within one (1) year of start-up.

3.04 MOUNTING PANEL

A. Locate metal, waterproof cabinet at the base of the tank (inside), or at location approved by the owner. Mount on electrical panel

3.05 OPERATION of SYSTEM

A. The owner reserves the right to leave the cathodic protection system out-of-service for one (1) full year.

B. Complete item 3.03 - Instructions when scheduled by the owner (within thirteen [13] months).

F. Extend one (1) year warranty of cathodic protection system one (1) year beyond date of energizing.

SECTION 16500
ELECTRICAL – COAGULATION TANKS

PART 1 – GENERAL

1.04 CODES
A. National Electric Code (NEC).

1.05 WORK INCLUDED
A. Remove existing lights and conduit from the tank.
B. Install new lights with conduit and new wiring on the two (2) coagulation tanks.

PART 2 – PRODUCTS

2.01 NEW LIGHTS
A. Fixtures to be Exec-SQR19 Wall Mount, 100 watt MH reflector-type, 5H, black, as manufactured by Sterner Lighting Systems, Inc., Winsted, MN 1-800-328-7480.

PART 3 – EXECUTION

3.01 REMOVE EXISTING LIGHTS
A. Remove the lights and conduit from the tank's sidewalls to the electrical panel. Grind all connections smooth.
B. Cost is incidental to exterior repainting.

3.02 INSTALL NEW LIGHTS and CONDUIT
A. Remove the existing wiring, conduit, and light fixtures. Furnish and install lights to replace those removed.
B. Run steel conduit with wiring from the electrical panel to each light.
C. Attach conduit to the tank using existing tabs.
D. All new wiring and conduit meet State and local electrical codes.
E. All electrical work to be performed by State Certified Electrician. Contractor to schedule and pay for inspection of electrical work.
F. Payment is a separate line item "Light Replacement" which the owner reserves the right to delete.

FIELD INSPECTION REPORT

STANDPIPES & RESERVOIRS

TANK OWNER: City of Lynchburg
PROJECT NUMBER: 46-61-01-05
LOCATION: Coagulation Tank #1, Lynchburg, VA
TYPE OF TANK: Standpipe - open top
DATE OF INSPECTION: 3/24/04
MANUFACTURER: PDM
HEIGHT TO H.W.L.: 65 ft. 2 in.
YEAR OF ERECTION: 1951
CONSTRUCTION METHOD: Welded
CAPACITY: 1,720,000 Gallons
TYPE OF ROOF: Open
LETTERING: None
DIAMETER: 67 ft.
LOGO: None
CONTRACT NO.: Unknown

SITE CONDITIONS: Water plant.

NEIGHBORHOOD: Residential and several tanks, municipal water plant to the east.

ACCESS: Paved on three sides.

POWER LINES: 10 ft. to the south.

OTHER PROBLEMS: High traffic with municipal employee parking on south and west sides, and municipal equipment entering and leaving.

GENERAL INFORMATION ABOUT PREVIOUS PAINTING (IF AVAILABLE):

	INTERIOR	EXTERIOR
DATE:	**1977**	**1977**
CONTRACTOR:	**Louis Guill Painting**	**Louis Guill Painting**
SURFACE PREP:	**SP10**	**SP10**
PAINT MANUF:	**Carboline**	**Rustoleum - Aluminum topcoat, red lead primer**

PART 1 - FOUNDATION CONDITIONS:

1. Indications of differential foundation settlement: **No**
2. Indications of underground pipe leaks: **No**
3. Is soil eroded so foundation may be undermined: **No**
4. Are base plates, anchor bolts, or anchor bolt chairs deteriorated: **No**
5. Are shrubs, trees, etc. encroaching the foundation: **No**
6. Is grout deteriorated: **Yes**
7. Is concrete spalled, cracked, or deteriorated: **Yes, part of concrete and grouting is covered by decorative wood chips.**

PART 2 - VALVE PIT CONDITIONS:

1. Is valve pit in good structural repair: **Yes**
2. Where are controls located: **Water plant**
3. Are controls heated: **In plant**
4. Does tank have cathodic protection: **Yes**
   Condition of cathodic protection: **Fair**
   Design of cathodic protection: **2 separate rectifiers; 1 for shell; 1 for 6 flocculation basins**
   Manufacturer: **Corrpro**
5. Does pit have an altitude valve: **Yes**
   Has owner complained about its operation: **No**
6. Is coating of piping and valves in good condition: **Fair**
   Is there any steel loss: **No**
7. Percent of coating remaining intact: **98%**
8. Is pit insulated: **No**

PART 3 - EXTERIOR CONDITIONS:

1. Sidewalls:
   a. General condition of topcoat: **Good** Mils: **8 - 10**
      Estimated percent intact: **99.9%**
   b. Estimated percent primer intact: **99.9%**
   c. Discussion of coating: **Aluminum coating retains color on areas not exposed to UV rays. Several abrasions and spots of active corrosion on tank shells are present.**

2. Additional Information:
   a. Is there an aluminum coat under topcoat: **Topcoat is aluminum**
      Any peculiar problems: **No**
   b. Results of adhesion tests, if recommended recoat: **2A – jagged removal – up to ? in. either side - brittle**
   c. Were any paint samples taken for lead: **Yes**
      How many: **1** Location(s): **exterior sidewall**

PART 4 - INTERIOR CONDITIONS:

1. Floor: **Not accessible due to sediment and +/- 3 ft. of water 2 ft. of sludge**
   a. Condition of steel: **Unknown – could be concrete**
   b. Discussion of coating: **Coating has exceeded its life expectancy to protect the steel.**

2. Sidewalls: # Shells: **9** # Section of shell: **9**
   a. General condition of topcoat: **Poor** Mils: **10 - 15**
      Percent intact: **65%**
   b. Percent of primer intact: **65%**

c. Condition of steel: **Good**
Starter pits: **No**
d. Estimate of pit welding: **0**
e. Estimate of pit filling: **0**
f. Number of lineal inches of seam welding: **0**
g. Number of lineal inches of seam sealing: **0**
h. Number of lineal inches of weld grinding: **0**
i. Number of construction lugs: **0**
j. Discussion of coating: **Heavy mineral staining. 35% of coating is failed to substrate.**

Any peculiar problems: **No roof – exposes epoxy to ultraviolet exposure**

Recommendations: **Abrasive blast clean entire wet interior and recoat with a NSF coating, but less susceptible to ultraviolet degradation**

Results of adhesion tests, if recommended recoat: **4A – trace peeling**

Were any paint samples taken for lead: **Yes**

PART 5 - CONDITION OF ACCESSORIES:

1. a. Interior ladder: **There is one ladder at upper platform that allows entry to floc cell. Ladder rungs are corroded.**
Condition: **Poor, rungs are severely corroded; brackets to ladder side rail are corroded.**
b. Sidewall stairway: Condition: **Good**
DIMENSIONS:
1. Pitch: ±**60°**

2. Sidewall hatches: **Yes** Size: **24 in.** Hinged: **Yes**
Gasket leaking: **No**

3. Does tank have inside spider or inside balcony: **Upper platform walkway**
Condition: **Good**
Percent of coating remaining intact: **90%**

4. Does tank have sidewall stiffeners: **Yes**

5. Roof vents: **Open top**

6. Does tank have drain line with valve: **Yes**

7. Previous repairs evident: **Recoated in 1977.**

8. Priority repairs: **Remove wood chips and dirt from around south side of tank exterior to expose foundation.**

9. Long term maintenance and general comments: **Abrasive blast clean and paint interior and exterior; install cathodic protection; install interior ladders.**

TECHNICIANS: **Tom Rounds; Chris Kreiner; Larry Houck**

DATE: **March 24, 2004**

The Field Inspection Report is prepared from the contractor's viewpoint. It contains most of the information the contractor needs to prepare his bid for any repairs or repainting. The Engineer uses it to prepare the engineering report. Cost estimates are more accurate if contractor problems can be anticipated. While prepared from the contractor's viewpoint, the only intended beneficiary is the owner. These reports are completed with diligence, but the accuracy is not guaranteed. The contractor is still advised to visit the site.

FIELD INSPECTION REPORT

STANDPIPES & RESERVOIRS

TANK OWNER: City of Lynchburg, VA
PROJECT NUMBER: 46-61-01-06
LOCATION: College Hill Water Plant
TYPE OF TANK: Coagulation Tank #2
DATE OF INSPECTION: 07/14/04
MANUFACTURER:
HEIGHT TO H.W.L.: 77 ft.
YEAR OF ERECTION: 1966
CONSTRUCTION METHOD: Welded
CAPACITY: 4,000,000 Gallons
TYPE OF ROOF: Open top
DIAMETER: 97 ft.

SITE CONDITIONS: Municipal property, fenced, gated, equipment storage.

NEIGHBORHOOD: Municipal, residential.

ACCESS: Fenced, gated municipal property.

POWER LINES: No problems.

OTHER PROBLEMS: Municipal equipment, service parking area, high traffic area.

GENERAL INFORMATION ABOUT PREVIOUS PAINTING (IF AVAILABLE):

	INTERIOR	EXTERIOR
DATE:	**Estimated 1979-1981**	**Estimated 1979-1981**
CONTRACTOR:	**Guill Painting**	**Guill Painting**
SURFACE PREP:	**SP10**	
PAINT SYSTEM:	**Epoxy**	**Alkyd/Aluminum**
PAINT MANUF:	**????????**	**Rustoleum**

PART 1 - FOUNDATION CONDITIONS:

1. Indications of differential foundation settlement: **No**
2. Indications of underground pipe leaks: **Yes**
3. Is soil eroded so foundation may be undermined: **No**
4. Are shrubs, trees, etc. encroaching the foundation: **No**
5. Is grout deteriorated: **Yes**
6. Is concrete spalled, cracked, or deteriorated: **Yes**
   Indication of lime between baseplate and ringwall foundation.

PART 2 - VALVE PIT CONDITIONS:

1. Is valve pit in good structural repair: **Yes**
2. Where are controls located: **Transducer in pit.**
3. Are controls heated: **No** Is tap heated: **No**
4. Does tank have cathodic protection: **No**

5. Does pit have an altitude valve: **No**
6. Is coating of piping and valves in good condition: **Fair on piping, bolt heads/nuts poor.**
   Is there any steel loss: **No**
7. Percent of coating remaining intact: **98%**
8. Is pit insulated: **No**

PART 3 - EXTERIOR CONDITIONS:

1. Sidewalls:
   a. General condition of topcoat: **Fair** Mils: **3-6**
      Estimated percent intact: **99.9%**
   b. Estimated percent primer intact: **99.9%**
   c. Discussion of coating: **Blue aluminum, somewhat faded.**

2. Additional Information:
   a. Is there an aluminum coat under topcoat: **Yes**
      Any peculiar problems:
      Recommendations:
   b. Results of adhesion tests, if recommended recoat: **2B**
   c. Were any paint samples taken for lead: **Yes**
      How many: **1** Location: **Bottom panel.**

PART 4 – WET INTERIOR CONDITIONS:

Floor: **Not drained.**

Any peculiar problems: **Effluent penetration on floor leaking in pit.**

Recommendations: **Drain tank and complete evaluation of submerged surfaces.**

Results of adhesion tests, if recommended recoat: **Taken on top of west beam above water line, 3B.**

Were any paint samples taken for lead: **Yes, top of westerly beam.**

PART 5 –CONDITION OF ACCESSORIES:

1. Sidewall hatches: **Yes - 1** Size: **24 in.** Hinged: **Yes**
   Gasket leaking: **No**
   Flanged with stainless steel bolts

2. Does tank have radial or vertical roof and sidewall stiffeners: **Yes**
   Type: **Radial** Number: **1** Condition: **Good**

3. Stiffener rings: **Yes** Location: **Wet interior painter's trolley, exterior sidewall.**

4. Fill pipe size: **30 in.** Condition: **Good**
   Fill pipe deflector plate/silt ring: **No**

5. Is there a separate draw line: **Yes**

6. Is overflow pipe in good condition: **Yes** Size: **12 in.**
   Screened: **No** Discharges to: **Below grade to storm drain system.**
   Is there an air break: **No**

7. Does tank have drain line with valve: **Yes**
   Size: **12 in.**

8. Aviation lights: **No**

9. Previous repairs evident: **Replaced drives and touched up coatings above water line. Reported recoated interior and exterior in 1979-1981.**

10. Priority repairs: **Drain tank, evaluate floor, evaluate submerged coatings.**

11. Long-term maintenance and general comments: **Budget for interior recoat. Coating has exceeded life expectancy.**

TECHNICIANS: **Thomas Rounds, Larry Houck, Tucker Adams**

DATE: **07/14/04**

The Field Inspection Report is prepared from the contractor's viewpoint. It contains most of the information the contractor needs to prepare his bid for any repairs or repainting. The Engineer uses it to prepare the engineering report. Cost estimates are more accurate if contractor problems can be anticipated. While prepared from the contractor's viewpoint, the only intended beneficiary is the owner. These reports are completed with diligence, but the accuracy is not guaranteed. The contractor is still advised to visit the site.